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—SPACE SHUTTLE—

**EFFECTS OF ORBITER/BOOSTER
PROXIMITY INTERFERENCE ON THE
AERODYNAMIC CHARACTERISTICS
OF THE 0.0088105-SCALE MSC
LAUNCH CONFIGURATION, MSC
TEST SERIES S-XXVIII**

**NASA
MANNED SPACECRAFT CENTER**

**WIND TUNNEL TEST RESULTS
DATA REPORT**

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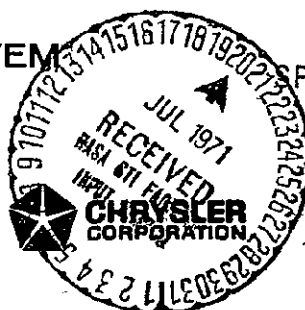
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**SADSAC SPACE SHUTTLE
AEROTHERMODYNAMIC
DATA MANAGEMENT SYSTEM**

**AMENDMENT 130
MARSHALL
SPACE FLIGHT CENTER**

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DMS-DR-1058
February, 1971

SADSAC/SPACE SHUTTLE
WIND TUNNEL TEST DATA REPORT

CONFIGURATION: MSC LAUNCH CONFIGURATION SL-13A (S-13A/SB-13A)
TEST PURPOSE: DEFINE THE EFFECTS OF ORBITER/BOOSTER PROXIMITY INTERFERENCE
ON THE AERODYNAMIC CHARACTERISTICS OF THE LAUNCH CONFIGURATION
DURING SEPARATION OR ABORT MANEUVERS
TEST FACILITY: LTV 4-FOOT HIGH SPEED WIND TUNNEL
TESTING AGENCY: NASA MANNED SPACECRAFT CENTER
TEST NO. & DATE: MSC TEST S-XXVIII (LTV) PHASE 1, OCTOBER 24, 1970
MODEL SCALE: 0.0088105
MACH NUMBERS: 1.81, 2.99, 4.39
TEST CONDUCTOR(S): PAUL O. ROMERE AND IVY H. FOSSLER
FACILITY COORDINATOR: RAY NELSON

DATA MANAGEMENT SERVICES

LIATION: G. G. McDonald

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This report has been prepared by Chrysler Corporation Space Division under a Data Management Contract to the NASA. Chrysler assumes no responsibility for the data presented herein other than its display characteristics.

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ABSTRACT

The supersonic phase of the 0.0088105-scale MSC Orbiter/Booster separation test (MSC test series S-XXVIII) was conducted during October, 1970 in the LTV 4-Foot High Speed Wind Tunnel, Dallas, Texas, at Mach numbers of 1.81, 2.99, and 4.39. The purpose of this test was to define the effects of the Orbiter/Booster proximity interference on the aerodynamic characteristics of the launch configuration during separation or abort maneuvers. Each model had both straight and delta wings available for variation of launch vehicle configuration concepts, but only the straight wing orbiter was utilized with both the straight and delta wing booster during this test.

DATA REDUCTION

Two internal strain gauge balances were utilized for this test; one in the orbiter and one in the booster. The measured data were reduced to coefficient form relative to the body axis system according to the wing configuration tested and the test run objective (orbiter or booster measured data). Listed below are the data set identifiers and the applicable dimensional data utilized to reduce the measured data to coefficient form:

Data Set Identifiers	Applicable Wing	S_{ref} (wing planform area, in. ²)	l_{ref} (wing mean aerodynamic chord, in.)	b (wing equivalent span, in.)
RCH001 through RCH031	W6 (Orbiter)	20.664	1.854	12.0
RCH032 through RCH073	WB1 (Booster)	54.658	2.992	19.7
RCH074 through RCH080	WB6 (Booster)	106.846	9.54	13.374

The moment reference point (MRP) for the orbiter is 9.388 inches aft of the orbiter nose, on the lateral centerline, and 1.462 inches above the bottom of the orbiter fuselage. The MRP for the booster is 15.899 inches aft of the nose, on the lateral centerline, and 2.0 inches above the bottom of the booster fuselage.

The separation positions listed in Table 1 are referenced to the orbiter and booster moment reference points and to the wind axis system unless otherwise specified. The ΔX and ΔZ positions as listed in Table 1 were held constant

during a test run by utilization of a servo mechanism system. For example, during an orbiter pitch or yaw sweep the booster was positioned to maintain a constant separation distance between the moment reference points of the orbiter and booster. The ΔY distance (lateral distance) between the orbiter and booster was always maintained at a constant value of zero.

Data for this test are referenced to orbiter angle of attack or angle of sideslip except for those test runs where the booster was tested alone. For example, on data set RCH032, force data were measured for the booster, but the booster was fixed at zero angle of attack and zero sideslip angle and the orbiter was pitched through an angle of attack range of -10° to 10° at a fixed sideslip angle of zero.

There are several test runs where the second independent variable alpha or beta (IDPVAR(2)) was measured but it was not varied; the applicable data sets and the number of data points per test run are listed below:

<u>Data Set Identifiers</u>	<u>Number of Data Points per Run</u>
RCH019 through RCH028	11
RCH047 through RCH055	11
RCH077	11
RCH078 through RCH080	21
RCH056 through RCH073	21

Data points applicable to the above data set identifiers were submitted into SADSAC in the same order as they were measured and these data were not arranged in ascending order. Data plots applicable to these data set identifiers

and this report were accomplished by using middle data points (the sixth data point for test runs with 11 points and the eleventh data point for test runs with 21 points).

Data submitted into SADSAC were the six basic body axis system coefficients and CPB (base pressure coefficient). The values of the total axial force coefficients (CA) were not corrected to free stream static pressure.

CONFIGURATIONS INVESTIGATED

The models for this test were constructed of aluminum and 17-4 PH stainless steel to facilitate component buildup testing. All control surfaces were constructed with zero deflection with no provisions for varying the deflection of these surfaces. A stress report (References 3 and 4) has been prepared for the complete models and the component parts.

NOMENCLATURE

MSC Orbiter 245 (S-13A) 0.0088105 Scale

B11 = fuselage
W6 = wing
H14 = horizontal tail
V5 = vertical tail

MSC Booster 251 (SB-13A) 0.0088105 Scale

BB3 = fuselage
WB1 = straight wing
WB6 = delta wing
HB1 = horizontal tail for straight wing configuration
VB1 = vertical tail for straight wing configuration
VB6 = vertical tails (see Figure 2 g)

Additional information on the above components are listed on the following pages and Figures 1, 2, and 6.

COMBINATIONS TESTED

Orbiter

B11W6H14V5

Booster

BB3WB1HB1
BB3WB1HB1VB1
BB3WB6VB6

CONFIGURATIONS INVESTIGATED (Concluded)

Tests applicable to the above configurations are described in Table 1, the Data Set Collation Sheets, and the Data Set Descriptor Sheets.

MODEL COMPONENT: BODY - Bu

GENERAL DESCRIPTION: ORBITER BODY (S-13A) 0.0088105 SCALE

DRAWING NUMBER: SDY 3 7100281

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length	<u>1776 IN.</u>	<u>15.647 IN.</u>
Max. Width	<u>260 IN.</u>	<u>2.291 IN.</u>
Max. Depth	<u>358 IN.</u>	<u>3.154 IN.</u>
Fineness Ratio	<u> </u>	<u> </u>
Area		
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u>313.12 FT²</u>	<u>3.500 IN²</u>

MODEL COMPONENT- WING (W6)

GENERAL DESCRIPTION- MSC ORBITER 245 (S-13A) 0.0088105 SCALE

DRAWING NUMBER- SDY 37100384

DIMENSIONS

TOTAL DATA	FULL SCALE (FT)	MODEL (IN)
AREA	1848.8	20.664
SPAN (EQUIVALENT)	113.20	12.000
ASPECT RATIO	6.969	6.969
TAPER RATIO	0.353	0.353
DIHEDRAL ANGLE, DEG	7.010	7.000
INCIDENCE ANGLE, DEG	4.010	4.000
SWEEP BACK ANGLE, DEG		
LEADING EDGE	14.000	14.000
TRAILING EDGE	1.460	1.460
0.25 ELEMENT LINE	9.271	9.271
CHORDS		
ROOT (WING STA. 0.0)	24.08	2.546
TIP, (EQUIVALENT)	8.49	0.898
MEAN AERODYNAMIC	17.54	1.854
.25 MAC COORDINATES		
X	99.15	10.482
Y	23.85	2.521
Z	2.91	0.307
AIRFOIL SECTION		
ROOT	NACA 0014-64	
TIP	NACA 0010-64	

EXPOSED DATA

AREA	1385.3	15.496
SPAN (EQUIVALENT)	91.93	9.719
ASPECT RATIO	6.096	6.096
TAPER RATIO	0.332	0.392
CHORDS		
ROOT (WING STA. 0.0)	21.67	2.291
TIP, (EQUIVALENT)	8.49	0.898
MEAN AERODYNAMIC	16.05	1.697
.25 MAC COORDINATES		
X	100.41	10.616
Y	30.42	3.217
Z	2.91	0.307

DIMENSIONS OBTAINED FROM MODEL DRAWINGS

MODEL COMPONENT- HORIZONTAL TAIL (H14)

GENERAL DESCRIPTION- MSC ORBITER 245 (S-13A) 0.0088105 SCALE

DRAWING NUMBER- SDY 37100389

DIMENSIONS

TOTAL DATA

	FULL SCALE (FT)	MODEL (IN)
AREA	901.6	10.078
SPAN (EQUIVALENT)	65.10	6.872
ASPECT RATIO	4.686	4.686
TAPER RATIO	0.353	0.353
DIHEDRAL ANGLE, DEG	0.000	0.000
INCIDENCE ANGLE, DEG	0.000	0.000
SWEEP BACK ANGLE, DEG		
LEADING EDGE	10.200	10.200
TRAILING EDGE	-12.900	-12.900
0.25 ELEMENT LINE	2.970	2.970
CHORDS		
ROOT (WING STA. 0.0)	20.30	2.167
TIP, (EQUIVALENT)	7.25	0.766
MEAN AERODYNAMIC	14.43	1.579
.25 MAC COORDINATES		
X	145.34	15.367
Y	13.56	1.444
Z	0.10	0.000
AIRFOIL SECTION		
ROOT	NACA 0012-64	
TIP	NACA 0012-64	

EXPOSED DATA

AREA	588.4	6.577
SPAN (EQUIVALENT)	48.35	5.112
ASPECT RATIO	3.973	3.973
TAPER RATIO	0.424	0.424
CHORDS		
ROOT (WING STA. 0.0)	17.79	1.807
TIP, (EQUIVALENT)	7.25	0.766
MEAN AERODYNAMIC	12.34	1.357
.25 MAC COORDINATES		
X	145.74	15.409
Y	18.78	1.986
Z	0.00	0.000

DIMENSIONS OBTAINED FROM MODEL DRAWINGS

MODEL COMPONENT- VERTICAL TAIL(V5)

GENERAL DESCRIPTION- MSC ORBITER 245 (S-13A) 0.0088105 SCALE

DRAWING NUMBER- SFY 37100388

DIMENSIONS

EXPOSED DATA -----	FULL SCALE (FT)	MODEL (IN)
AREA	455.1	5.087
SPAN (EQUIVALENT)	21.17	2.238
ASPECT RATIO	0.915	0.985
TAPER RATIO	0.470	0.470
DIHEDRAL ANGLE, DEG	0.000	0.000
INCIDENCE ANGLE, DEG	0.000	0.000
SWEEP BACK ANGLE, DEG		
LEADING EDGE	45.000	45.000
TRAILING EDGE	15.008	15.008
0.25 ELEMENT LINE	34.811	34.811
CHORDS		
ROOT (WING STA. 0.0)	29.25	3.092
TIP, (EQUIVALENT)	13.75	1.454
MEAN AERODYNAMIC	22.14	2.373
.25 MAC COORDINATES		
X	138.25	14.617
Y	0.10	0.000
Z	39.14	4.133
AIRFOIL SECTION		
ROOT	NACA 0012-64	
TIP	NACA 0012-64	

DIMENSIONS OBTAINED FROM MODEL DRAWINGS

MODEL COMPONENT: BODY - B03

GENERAL DESCRIPTION: BOOSTER 2.51 REVISION B (SB-13A)

0.0088105 SCALE.

DRAWING NUMBER: SDY 37100282

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length	<u>2578 IN.</u>	<u>22.713 IN.</u>
Max. Width	<u>384 IN.</u>	<u>3.383 IN.</u>
Max. Depth	<u>419 IN.</u>	<u>3.691 IN.</u>
Fineness Ratio	<u> </u>	<u> </u>
Area		
Max. Cross-Sectional	<u>1006.9 FT²</u>	<u>11.255 IN²</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u>899.5 FT²</u>	<u>10.054 IN²</u>

MODEL COMPONENT- WING (WR1)

GENERAL DESCRIPTION- MSC BOOSTER 251 (SB-13A) 0.0088105 SCALE

DRAWING NUMBER- SDY 37100370

DIMENSIONS

TOTAL DATA -----	FULL SCALE (FT)	MODEL (IN)
AREA	4889.8	54.658
SPAN (EQUIVALENT)	186.33	19.700
ASPECT RATIO	7.100	7.100
TAPER RATIO	0.347	0.347
DIEHEDRAL ANGLE, DEG	7.000	7.000
INCIDENCE ANGLE, DEG	4.000	4.000
SWEEP BACK ANGLE, DEG		
LEADING EDGE	14.000	14.000
TRAILING EDGE	1.460	1.460
0.25 ELEMENT LINE	9.360	9.360
CHORDS		
ROOT (WING STA. 0.0)	38.38	4.121
TIP, (EQUIVALENT)	13.61	1.428
MEAN AERODYNAMIC	28.32	2.994
.25 MAC COORDINATES		
X	150.07	15.867
Y	39.05	4.128
Z	4.76	0.503
AIRFOIL SECTION		
ROOT	NACA -0014-64	
TIP	NACA 0010-64	

EXPOSED DATA -----		
AREA	3777.2	42.221
SPAN (EQUIVALENT)	154.44	16.328
ASPECT RATIO	6.314	6.314
TAPER RATIO	0.381	0.381
CHORDS		
ROOT (WING STA. 0.0)	35.41	3.744
TIP, (EQUIVALENT)	13.61	1.428
MEAN AERODYNAMIC	26.11	2.763
.25 MAC COORDINATES		
X	151.35	16.066
Y	48.79	5.159
Z	4.76	0.503

DIMENSIONS OBTAINED FROM MODEL DRAWINGS

MODEL COMPONENT- WING (WR6)

GENERAL DESCRIPTION- MSC BOOSTER 251 (S9-13A) 0.0088105 SCALE

DRAWING NUMBER- SDY 37100430

DIMENSIONS

TOTAL DATA

-----	FULL SCALE (FT)	MODEL (IN)
AREA	10400.8	106.846
SPAN (EQUIVALENT)	126.50	13.374
ASPECT RATIO	1.538	1.538
TAPER RATIO	0.298	0.298
DIEHEDRAL ANGLE, DEG	15.000	15.000
INCIDENCE ANGLE, DEG	2.283	2.283
SWEEP BACK ANGLE, DEG		
LEADING EDGE	55.000	55.000
TRAILING EDGE	-0.000	-0.000
0.25 ELEMENT LINE	46.072	46.072
CHORDS		
ROOT (WING STA. 0.0)	126.57	13.392
TIP, (EQUIVALENT)	37.78	3.994
MEAN AERODYNAMIC	90.28	9.544
.25 MAC COORDINATES		
X	164.02	17.437
Y	25.93	2.741
Z	6.71	0.709
AIRFOIL SECTION		
ROOT	NACA 4410	
TIP	NACA 4410	

EXPOSED DATA

AREA	6701.2	74.906
SPAN (EQUIVALENT)	94.50	10.002
ASPECT RATIO	1.336	1.336
TAPER RATIO	0.364	0.364
CHORDS		
ROOT (WING STA. 0.0)	103.39	10.984
TIP, (EQUIVALENT)	37.78	3.994
MEAN AERODYNAMIC	76.02	8.037
.25 MAC COORDINATES		
X	175.53	18.569
Y	35.32	3.798
Z	6.71	0.709

DIMENSIONS OBTAINED FROM MODEL DRAWINGS

MODEL COMPONENT- HORIZONTAL TAIL (F81)

GENERAL DESCRIPTION- MSC BOOSTER 251 (SB-13A) 0.0088105 SCALE

DRAWING NUMBER- SEY 37100369

DIMENSIONS

TOTAL DATA -----	FULL SCALE (FT)	MODEL (IN)
AREA	3540.2	39.572
SPAN (EQUIVALENT)	105.90	11.196
ASPECT RATIO	3.158	3.168
TAPER RATIO	0.354	0.364
DIEHEDRAL ANGLE, DEG	0.000	0.000
INCIDENCE ANGLE, DEG	0.000	0.000
SWEEP BACK ANGLE, DEG		
LEADING EDGE	24.000	24.000
TRAILING EDGE	-7.000	-7.000
0.25 ELEMENT LINE	14.349	14.349
CHORDS		
ROOT (WING STA. 0.0)	49.03	5.184
TIP, (EQUIVALENT)	17.93	1.885
MEAN AERODYNAMIC	35.98	3.793
.25 MAC COORDINATES		
X	206.19	21.800
Y	22.36	2.364
Z	0.00	0.000
AIRFOIL SECTION		
ROOT	NACA 0012-64	
TIP	NACA 0012-64	

EXPOSED DATA -----		
AREA	2138.8	23.908
SPAN (EQUIVALENT)	74.00	7.824
ASPECT RATIO	2.560	2.560
TAPER RATIO	0.446	0.446
CHORDS		
ROOT (WING STA. 0.0)	39.07	4.226
TIP, (EQUIVALENT)	17.93	1.885
MEAN AERODYNAMIC	30.33	3.207
.25 MAC COORDINATES		
X	209.13	22.111
Y	32.08	3.392
Z	0.10	0.000

DIMENSIONS OBTAINED FROM MODEL DRAWINGS

MODEL COMPONENT- VERTICAL TAIL (V31)

GENERAL DESCRIPTION- MSC BOOSTER 251 (SR-13A) 0.0088105 SCALE

DRAWING NUMBER- SDY 37100362

DIMENSIONS

EXPOSED DATA -----	FULL SCALE (FT)	MODEL (IN)
AREA	1005.6	11.240
SPAN (EQUIVALENT)	31.51	3.331
ASPECT RATIO	0.987	0.987
TAPER RATIO	0.456	0.456
DIEHEDRAL ANGLE, DEG	0.000	0.000
INCIDENCE ANGLE, DEG	0.000	0.000
SWEEP BACK ANGLE, DEG		
LEADING EDGE	45.000	45.000
TRAILING EDGE	13.700	13.700
0.25 ELEMENT LINE	34.841	34.841
CHORDS		
ROOT (WING STA. 0.0)	43.33	4.634
TIP, (EQUIVALENT)	20.00	2.115
MEAN AERODYNAMIC	33.42	3.533
.25 MAC COORDINATES		
X	199.49	21.092
Y	0.00	0.000
Z	48.70	5.149
AIRFOIL SECTION		
ROOT	NACA 0012-64	
TIP	NACA 0012-64	

DIMENSIONS OBTAINED FROM MODEL DRAWINGS

MODEL COMPONENT- VERTICAL TAIL(V36)

GENERAL DESCRIPTION- MSC BOOSTER 251 (S8-13A) 0.0088105 SCALE

DRAWING NUMBER- SDY 37100431

DIMENSIONS

EXPOSED DATA -----	FULL SCALE (FT)	MODEL (IN)
AREA	1499.6	16.763
SPAN (EQUIVALENT)	39.70	4.197
ASPECT RATIO	1.051	1.051
TAPER RATIO	1.000	1.000
DIEHEDRAL ANGLE, DEG	0.000	0.000
INCIDENCE ANGLE, DEG	0.000	0.000
SWEEP BACK ANGLE, DEG		
LEADING EDGE	75.000	75.000
TRAILING EDGE	75.000	75.000
0.25 ELEMENT LINE	73.820	73.820
CHORDS		
ROOT (WING STA. 0.0)	37.78	3.994
TIP, (EQUIVALENT)	37.78	3.994
MEAN AERODYNAMIC	37.30	3.996
.25 MAC COORDINATES		
X	277.74	29.365
Y	0.00	0.000
Z	38.43	4.064
AIRFOIL SECTION		
ROOT	NACA 0012-64	
TIP	NACA 0012-64	

DIMENSIONS OBTAINED FROM MODEL DRAWINGS

TEST XXVIII, PHASE I DATA SET COLLATION SHEET

NOT REPRODUCIBLE

☐ PRETEST

☒ POSTTEST

18

DATA SET IDENTIFIER	CONFIGURATION		ORBITER		BOOSTER		MACH NO.	SEPARATION POSITIONS														
	ORBITER	BOOSTER	1	2	3	4		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RCH CC1	B ₁₁ W ₆ H ₁₄ V ₂	B ₁₂ W ₆ H ₁₄	A	C°	C°	C°	1.81	12	13	14	6	7	8	3	4	5	9	10	11			
RCH CC2		B ₁₂ W ₆ H ₁₄ V ₂	C°	B	C°	C°				15	16		17		18	19			20			
RCH CC3		B ₁₂ W ₆ H ₁₄	A	C°	+5°	C°					21	22	23	24	25	26	27	28	29			
RCH CC4		B ₁₂ W ₆ H ₁₄ V ₂	C°	B	C°	+5°	Y			31	32		33		34				35			
RCH CC5		B ₁₂ W ₆ H ₁₄	A	C°	-5°	C°	Y				36	37	38	39	40	41	42	43	44			
RCH CC6			A	C°	-5°	C°	1.99				51	52	53	54	55	56	57	58	59			
RCH CC7			A	C°	C°	C°		63	64	65	66	67	68	69	70	71	72	73	74			
RCH CC8		B ₁₂ W ₆ H ₁₄ V ₂	C°	B	C°	C°				77	78		79		80	81			82			
RCH CC9			C°	B	C°	C°				13	14		15		16	17			18			
RCH C10		B ₁₂ W ₆ H ₁₄	A	C°	+5°	C°	Y				79	80	81	82	83	84	85	86	87			
RCH C11			A	C°	+5°	C°	4.39				97	98	99	94	95	96	91	92	93			
RCH C12			A	C°	C°	C°		111	112	113	114	115	116	117	118	119	120	121	122			
RCH C13		B ₁₂ W ₆ H ₁₄ V ₂	C°	B	C°	C°				119	120		121		122				123			
RCH C14			C°	B	C°	+5°				125	126		127		128				129			
RCH C15		B ₁₂ W ₆ H ₁₄	A	C°	-5°	C°	Y				126	127	128	129	130	131	132	133	134			
RCH C16		B ₁₂ W ₆ H ₁₄ V ₂	A	C°	-5°	C°	1.81				141	142	143	144	145	146	147	148	149			
RCH C17			A	C°	C°	C°		144	145	146	147	148	149	150	151	152	153	154	155			
RCH C18			C°	B	C°	C°				156	157		158		159	160			161			
RCH C19			C°	C°	C°	C°														162	163	
RCH C20		B ₁₂ W ₆ H ₁₄	C°	C°	C°	C°	Y													164	165	

1 7 13 19 25 31 37 43 49 55 61 67 73 76
 CA ICY ICN CBL CLM CYN CPB SEPPOS 7

COEFFICIENTS:

⇒ IDPVAR(1) IDPVAR(2) NDV

α or β
 SCHEDULES

A = ± 10° (DATA AT SMALL TILTING ANGLES - NOT ...)

B = ± 6° (DATA AT SMALL TILTING ANGLES - NOT ...)

TEST XXVIII DATA SET COLLATION SHEET

NOT REPRODUCIBLE

☐ PRETEST
☒ POSTTEST

29

DATA SET IDENTIFIER	CONFIGURATION		ORBITER		BOOSTER		MAGN. NO.	SEPARATION POSITIONS														
	ORBITER	BOOSTER	α	β	α	β		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RCH C21	B.W.H. 24	22.1A. 14	0°	0°	15°	5°	1.51												166	167		
RCH C22			0°	0°	15°	5°	1.51												168	169		
RCH C23			0°	0°	15°	5°	1.51												170	171		
RCH C24			0°	0°	15°	5°	1.51												172	173		
RCH C25			0°	0°	15°	5°	1.51												174	175		
RCH C26			0°	0°	15°	5°	1.51												176	177		
RCH C27		↓	15°	0°	15°	5°	1.51												178	179		
RCH C28		↓	15°	0°	15°	5°	1.51												180	181		
RCH C29		EFF	A	0°			1.51															2
RCH C30	↓	↓	A	0°			2.99															11
RCH C31	↓	↓	A	0°			7.39															127

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

CA CY CN CBL CLM CYN CPB SEPPAS 7

COEFFICIENT : IDPVAR(1) IDPVAR(2) NDV

α or β
SCHEDULES
A = ±10° (DATA AT SMALL INCREMENTS - NOT CONSTANT FOR EACH RUN)
B = ±6° (DATA AT SMALL INCREMENTS - NOT CONSTANT FOR EACH RUN)

TEST CAVILL, PRINCE 1 DATA SET COLLATION SHEET

20

☐ PRETEST

☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION		ORBITER		BOOSTER		MATH NO.	SEPARATION POSITIONS														
	ORBITER	BOOSTER	α	β	α	β		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RCH C32	B_1, W_1, H_1, V_1	B_{03}, W_{01}, H_{01}	A	C	C	C	1.21	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526
RCH C33		B_1, W_1, H_1, V_1	C	B	C	C				515	516		517		518	519			520			
RCH C34		B_1, W_1, H_1, V_1	A	C	+5°	C				515	516	517	518	519	520	521	522	523	524	525	526	527
RCH C35		$B_{03}, W_{01}, H_{01}, V_{01}$	C	B	C	+5°				515	516		517		518	519			520			
RCH C36		B_1, W_1, H_1, V_1	A	C	-5°	C				515	516		517		518	519			520			
RCH C37			A	C	-5°	C	1.29			515	516	517	518	519	520	521	522	523	524	525	526	527
RCH C38			A	C	C	C		563	564	565	566	567	568	569	570	571	572	573	574	575	576	577
RCH C39		$B_{03}, W_{01}, H_{01}, V_{01}$	C	B	C	C				563	564		565		566	567			568			
RCH C40			C	B	C	+5°				563	564		565		566	567			568			
RCH C41		B_{03}, W_{01}, H_{01}	A	C	-5°	C				563	564		565		566	567			568			
RCH C42			A	C	15°	C	4.39			563	564		565		566	567			568			
RCH C43			A	C	C	C		611	612	613	614	615	616	617	618	619	620	621	622	623	624	625
RCH C44		B_1, W_1, H_1, V_1	C	B	C	C				611	612		613		614	615			616			
RCH C45			C	B	C	+5°				611	612		613		614	615			616			
RCH C46		B_{03}, W_{01}, H_{01}	A	C	-5°	C				611	612		613		614	615			616			
RCH C47			C	B	C	C	1.81			611	612		613		614	615			616			
RCH C48			+5°	C	+5°	C				611	612		613		614	615			616			
RCH C49			-5°	C	-5°	C				611	612		613		614	615			616			
RCH C50			-5°	C	-5°	C	2.99			611	612		613		614	615			616			
RCH C51			15°	C	+5°	C				611	612		613		614	615			616			

1 7 13 19 25 31 37 43 49 55 61 67 73 79

CA 1CY 1CN 1CBL 1CLM 1CYN 1CPB SEPPAS 7

COEFFICIENTS:

α or β

SCHEDULES

$A = \pm 10^\circ$ (DATA AT SMALL INCREMENTS - NOT CONSTANT FOR EACH RUN)

$B = \pm 6^\circ$ (DATA AT SMALL INCREMENTS - NOT CONSTANT FOR EACH RUN)

IDPVAR(1) IDPVAR(2) IDV

NOT REPRODUCIBLE

☐ PRETEST☒ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION		ORBITER		BOOSTER		MAGN. NO.	SEPARATION POSITIONS														
	ORBITER	BOOSTER	α	β	α	β		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RCH 052	B_{11}, W_6, H_{11}, V_7	B_{11}, W_6, H_{11}, V_7	0°	0°	0°	0°	2.99													674	675	
RCH 053			0°	0°	0°	0°	4.39													676	677	
RCH 054			$+5^\circ$	0°	$+5^\circ$	0°														678	679	
RCH 055			-5°	0°	-5°	0°														680	681	
RCH 056	OFF				-5°	0°																682
RCH 057					$+5^\circ$	0°																683
RCH 058					0°	0°																688
RCH 059					0°	$+5^\circ$																685
RCH 060		$B_{B3}, W_{B1}, H_{B1}, V_{B1}$			0°	$+5^\circ$																686
RCH 061					0°	0°																687
RCH 062					0°	0°	2.99															689
RCH 063		B_{B3}, W_{B1}, H_{B1}			0°	0°																690
RCH 064					0°	$+5^\circ$																691
RCH 065		$B_{B3}, W_{B1}, H_{B1}, V_{B1}$			0°	$+5^\circ$																692
RCH 066		B_{B3}, W_{B1}, H_{B1}			$+5^\circ$	0°																693
RCH 067					-5°	0°																694
RCH 068					-5°	0°	1.81															695
RCH 069					$+5^\circ$	0°																696
RCH 070					0°	0°																697
RCH 071					0°	$+5^\circ$																701

1 2 13 19 25 31 37 43 49 55 61 67 75 76
 CA ICY ICN CBL CLM CYN CPB SEPPQS 7

COEFFICIENTS: IDPVAR(1) IDPVAR(2) NDV

α or β
 SCHEDULES

$A = \pm 10^\circ$ (DATA AT SMALL INCREMENTS - NOT CONSTANT FOR EACH RUN)
 $B = \pm 6^\circ$ (DATA AT SMALL INCREMENTS - NOT CONSTANT FOR EACH RUN)

22

☒ POSTTEST22

22

⇒ LDPVAR(1) | LDPVAR(2) | NDV

$A = \pm 10^\circ$ (DATA AT SMALL INCREMENTS - NOT CONSTANT FOR EACH RUN)
 $B = \pm 6^\circ$ (DATA AT SMALL INCREMENTS - NOT CONSTANT FOR EACH RUN)

TEST DATA SET COLLATION SHEET

NOT REPRODUCIBLE

☐ PRETEST 23
☐ POSTTEST

DATA SET IDENTIFIER	CONFIGURATION		ORBITER		BOOSTER		MACH NO.	SEPARATION POSITIONS														
	ORBITER	BOOSTER	α	β	α	β		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
RCH 674	5.1. 7.1	5.1. 7.1	4	1	1	1	1				5.1	6.1	6.1	6.1	6.1	6.1	6	6.1	6.1			
RCH 672			4	1	1	1		6.1	6.1	6.1	6.1	6.1	6.1	6	6.1	6.1	6.1	6.1	6.1			
RCH 671			5	1	1	1				6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1			
RCH 677			6	1	1	1														6.1	6.1	
RCH 676	6.1				6	1																6.1
RCH 675					6	1																6.1
RCH 670					6	1																6.1

1 7 13 19 25 31 37 43 49 55 61 67 75 76

CA ICY ICN ICBL IC'LM ICYN CPB SEP 7/45 7

COEFFICIENTS:

α or β
SCHEDULES

A = ±11.6° (DATA AT SMALL INCIDENCE ANGLES - NOT CONSTANT FOR EACH RUN)
B = ±6° (DATA AT SMALL INCIDENCE ANGLES - NOT CONSTANT FOR EACH RUN)

→ IDPVAR(1) IDPVAR(2) NDV

DATASETS CREATED
IN
PROGRAM OPERATIONS

Composed of selected data from d-sets



Composed of selected data from d-sets

RCH068, -070, and -069

RCH067, -063, and -066

RCH056, -058, and -057

RCH022, -020, and -021

RCH023, -025, and -024

RCH028, -026, and -027

RCH049, -047, and -048

RCH050, -052, and -051

RCH055, -053, and -054

RCH070, and -071

RCH073, and -072

RCH062, and -065

RCH063, and -064

RCH058, and -059

RCH061, and -060

TFST S-KXVIII, Phase L DATA SET DESCRIPTOR SHEET

24

DATA SET IDENTIFIER	DATA SET DESCRIPTOR				Node Type	CURVE SLOPE RANGE	
	11	21	31	41		51 LOWER LIMIT	61 UPPER LIMIT
RCH C01	M, S.C. 51-2E	PRETIER	B11WB1HBI	NEAR 22.51HB1	11		
RCH C02				B13WB1HBI	21		
RCH C03				B13WB1HBI	11		
RCH C04				B13WB1HBI	21		
RCH C05				B13WB1HBI	11		
RCH C06				↓	11		
RCH C07				↓	11		
RCH C08				B13WB1HBI	21		
RCH C09				↓	21		
RCH C10				B13WB1HBI	11		
RCH C11				↓	11		
RCH C12				↓	11		
RCH C13				B13WB1HBI	21		
RCH C14				↓	21		
RCH C15				B13WB1HBI	11		
RCH C16				B13WB1HBI	11		
RCH C17				↓	11		
RCH C18				↓	21		
RCH C19				↓	11		
RCH C20	↓	↓	↓	↓	↓	B13WB1HBI	11

1	SREF(1)	11	SREF(2)	21	LREF(1)	31	LREF(2)	41	BREF(1)	51	BREF(2)	61	XMRF(1)	71	XMRF(2)
	20.664		SQ IN		1.854		IN		12.0		IN		9.308		IN
	0.0		IN		1.460		IN		0.0088105						
	YMRF(1)		YMRF(2)		ZMRF(1)		ZMRF(2)		SCALE(1)		SCALE(2)				FILREF

56

1	SREF(1)	11	SKF(2)	21	LREF(1)	31	LREF(2)	41	BREF(1)	51	BREF(2)	61	XMRP(1)	71	XMRP(2)
	20.664		SQ IN		1.854		IN		12.0		IN		9.388		IN
	0.0		IN		1.460		IN		0.0088105						
	YMRP(1)		YMRP(2)		ZMRP(1)		ZMRP(2)		SCALE(1)		SCALE(2)				FILREF

TEST S-XXVIII, PHASE 1 DATA SET DESCRIPTOR SHEET

26

DATA SET IDENTIFIER	DATA SET DESCRIPTOR				Mode Type	CURVE SLOPE RANGE	
	11	21	31	41		51 LOWER LIMIT	61 UPPER LIMIT
RCH 032	M.S.C. S-28	BOOSTER	BB3WB1HBI	NEAR B11W6H14V5	11		
RCH 033			BB3WB1HBI	NEAR B11W6H14V5	21		
RCH 034			BB3WB1HBI	NEAR B11W6H14V5	11		
RCH 035			BB3WB1HBI	NEAR B11W6H14V5	21		
RCH 036			BB3WB1HBI	NEAR B11W6H14V5	11		
RCH 037					11		
RCH 038					11		
RCH 039			BB3WB1HBI	NEAR B11W6H14V5	21		
RCH 040					21		
RCH 041			BB3WB1HBI	NEAR B11W6H14V5	11		
RCH 042					11		
RCH 043					11		
RCH 044			BB3WB1HBI	NEAR B11W6H14V5	21		
RCH 045					21		
RCH 046			BB3WB1HBI	NEAR B11W6H14V5	11		
RCH 047					11		
RCH 048					11		
RCH 049					11		
RCH 050					11		
RCH 051					11		

1	SREF(1)	11	SREF(2)	21	LREF(1)	31	LREF(2)	41	BREF(1)	51	BREF(2)	61	XMRF(1)	71	XMRF(2)
	54.658		50 IN		2.992		IN		19.7		IN		15.899		IN
	0.0		IN		2.0		IN		0.0088105						
	YMRF(1)		YMRF(2)		ZMRF(1)		ZMRF(2)		SCALE(1)		SCALE(2)		FILREF		

TEST S-XXVIII CHASE I DATA SET DESCRIPTOR SHEET

7

DATA SET IDENTIFIER	DATA SET DESCRIPTOR				Node Type	CURVE SLOPE RANGE	
	1	21	31	41		LOWER LIMIT	UPPER LIMIT
RCH 052	MSC, 5-28, BOOSTER BB3WB1HBI NEAR B. 1 WCH 14. V5				11		
RCH 053					11		
RCH 054					11		
RCH 055					11		
RCH 056			ALONE		11		
RCH 057					11		
RCH 058					11		
RCH 059					21		
RCH 060			BB3WB1HBI VBI ALONE		21		
RCH 061					11		
RCH 062					11		
RCH 063			BB3WB1HBI ALONE		11		
RCH 064					21		
RCH 065			BB3WB1HBI VBI ALONE		21		
RCH 066			BB3WB1HBI ALONE		11		
RCH 067					11		
RCH 068					11		
RCH 069					11		
RCH 070					11		
RCH 071					21		

1	SREF(1)	11	SREF(2)	21	LREF(1)	31	LREF(2)	41	BREF(1)	51	BREF(2)	61	XMRP(1)	71	XMRP(2)
	54.656		SQ IN		2.992		IN		19.7		IN		15.899		IN
	0.0		IN		2.0		IN		0.0000105						
	YMRP(1)		YMRP(2)		ZMRP(1)		ZMRP(2)		SCALE(1)		SCALE(2)				FILREF

1	SREF(1)	11	SREF(2)	21	LREF(1)	31	LREF(2)	41	BREF(1)	51	BREF(2)	61	XMRF(1)	71	XMRF(2)
	54.658		SQ IN		2.992		IN		19.7		IN		15.899		IN
	0.0		IN		2.0		IN		0.0088105						
	YMRF(1)		YMRF(2)		ZMRF(1)		ZMRF(2)		SCALE(1)		SCALE(2)				FILREF

NOT REPRODUCIBLE

1	SKF(1)	11	SKF(2)	21	LRF(1)	31	LRF(2)	41	BRF(1)	51	BRF(2)	61	XMRP(1)	71	XMRP(2)
	106.846		SQ IN		9.54		IN		13.374		IN		15.899		IN
	0.0		IN		2.0		IN		0.0088105						
	YMRP(1)		YMRP(2)		ZMRP(1)		ZMRP(2)		SCALE(1)		SCALE(2)				FILREF

DATA SET PARAMETER NAME SHEET

TEST S-XXVIII, PHASE I

30

DATA SET IDENTIFIER	PARAMETER NAMES (Format 10A6)										NPRA
	1	7	13	19	25	31	37	43	49	55	61
RCH001	BETA	MACH	ALPB	BETB							
RCH002	ALPHA										
RCH003	BETA										
RCH004	ALPHA										
RCH005	BETA										
RCH006	BETA										
RCH007	BETA										
RCH008	ALPHA										
RCH009	ALPHA										
RCH010	BETA										
RCH011	BETA										
RCH012	BETA										
RCH013	ALPHA										
RCH014	ALPHA										
RCH015	BETA										
RCH016	BETA										
RCH017	BETA										
RCH018	ALPHA										
RCH019	ALPHA	BETA	MACH	ALPB	BETB						
RCH020	ALPHA	BETA	MACH	ALPB	BETB						

NOT REPRODUCIBLE

Test S-XXVIII, Phase I

Test S-XXVIII, Phase I

31

[illegible]

DATA SET PARAMETER NAME SHEET

TEST S-XXVIII, PHASE I

23

DATA SET IDENTIFIER	PARAMETER NAMES (Format 10A6)										NPR
	1	7	13	19	25	31	37	43	49	55	
RCH 032	BETA	ALPB	BETB	MACH							
RCH 033	ALPHA										
RCH 034	BETA										
RCH 035	ALPHA										
RCH 036	BETA										
RCH 037	BETA										
RCH 038	BETA										
RCH 039	ALPHA										
RCH 040	ALPHA										
RCH 041	BETA										
RCH 042	BETA										
RCH 043	BETA										
RCH 044	ALPHA										
RCH 045	ALPHA										
RCH 046	BETA	↓	↓	↓							
RCH 047	ALPHA	BETA	ALPB	BETB	MACH						
RCH 048											
RCH 049											
RCH 050											
RCH 051	↓	↓	↓	↓	↓						

TEST S-XXVIII, PHASE 1

33

DATA SET IDENTIFIER	PARAMETER NAMES (Format 10A6)										61
	7	13	19	25	31	37	43	49	55		
RCR052	ALPHA	BI.A	ALPB	BEIB	MACH						
RCR053											
RCR054											
RCR055	Y	Y	Y	Y	Y						
RCR056	ALPB	BEIB	MACH								
RCR057											
RCR058											
RCR059											
RCR060											
RCR061											
RCR062											
RCR063											
RCR064											
RCR065											
RCR066											
RCR067											
RCR068											
RCR069											
RCR070											
RCR071	Y	Y	Y								

34

34

[illegible]

NOT REPRODUCIBLE

DATA SET PARAMETER NAME SHEET

TEST S-XXVIII, PHASE I

35

[illegible]

DATA SET PARAMETER VALUE SHEET

TEST S-XXVIII, PHASE I

36

DATA SET IDENTIFIER	PARAMETER VALUE (Format 10F8.3)									
	1	9	17	25	33	41	49	51	65	73
RCH 001	0.	1.81	0.	0.						
RCH 002	0.	1.81	0.	0.						
RCH 003	0.	1.81	5.	0.						
RCH 004	0.	1.81	0.	5.						
RCH 005	0.	1.81	-5.	0.						
RCH 006	0.	2.99	-5.	0.						
RCH 007	0.	2.99	0.	-0.						
RCH 008	0.	2.99	0.	0.						
RCH 009	0.	2.99	0.	5.						
RCH 010	0.	3.99	5.	0.						
RCH 011	0.	4.39	5.	0.						
RCH 012	0.	4.39	0.	0.						
RCH 013	0.	4.39	0.	0.						
RCH 014	0.	4.39	0.	5.						
RCH 015	0.	4.39	-5.	0.						
RCH 016	0.	1.81	5.	0.						
RCH 017	0.	1.81	0.	0.						
RCH 018	0.	1.81	0.	0.						
RCH 019	0.	0.	1.81	0.	0.					
RCH 020	0.	0.	1.81	0.	0.					

NOT REPRODUCIBLE

DATA SET PARAMETER VALUE SHEET

TEST S-XXVIII, PHASE I

23

[illegible]

DATA SET PARAMETER VALUE SHEET

TEST S-XXVIII , PHASE I

38

DATA SET IDENTIFIER	PARAMETER VALUE (Format 10F8.3)							
	1	9	17	25	33	41	49	51
RCH032	0.	0.	0.	1.81				
RCH033	0.	0.	0.	1.81				
RCH034	0.	5.	0.	1.81				
RCH035	0.	0.	5.	1.81				
RCH036	0.	-5.	0.	1.81				
RCH037	0.	-5.	0.	2.99				
RCH038	0.	0.	0.	2.99				
RCH039	0.	0.	0.	2.99				
RCH040	0.	0.	5.	2.99				
RCH041	0.	5.	0.	2.99				
RCH042	0.	5.	0.	4.39				
RCH043	0.	0.	0.	4.39				
RCH044	0.	0.	0.	4.39				
RCH045	0.	0.	5.	4.39				
RCH046	0.	-5.	0.	4.39				
RCH047	0.	0.	0.	0.	1.81			
RCH048	5.	0.	5.	0.	1.81			
RCH049	-5.	0.	-5.	0.	1.81			
RCH050	-5.	0.	-5.	0.	2.99			
RCH051	5.	0.	5.	0.	2.99			

NOT REPRODUCIBLE

DATA SET PARAMETER VALUE SHEET

TEST S-XXVIII, PHASE 1

39

DATA SET IDENTIFIER	PARAMETER VALUE (Format 10F8.3)									
	1	9	17	25	33	41	49	51	65	73
RCH 052	0.	0.	0.	0.	2.99					
RCH 053	0.	0.	0.	0.	4.39					
RCH 054	5.	0.	5.	0.	4.39					
RCH 055	-5.	0.	-5.	0.	4.39					
RCH 056	-5.	0.	4.39							
RCH 057	5.	0.	4.39							
RCH 058	0.	0.	4.39							
RCH 059	0.	5.	4.39							
RCH 060	0.	5.	4.39							
RCH 061	0.	0.	4.39							
RCH 062	0.	0.	2.99							
RCH 063	0.	0.	2.99							
RCH 064	0.	5.	2.99							
RCH 065	0.	5.	2.99							
RCH 066	5.	0.	2.99							
RCH 067	-5.	0.	2.99							
RCH 068	-5.	0.	1.81							
RCH 069	5.	0.	1.81							
RCH 070	0.	0.	1.81							
RCH 071	0.	5.	1.81							

TEST S-XXVIII, PHASE I

07.

[illegible]

TEST S-XXVIII, PHASE 1

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[illegible]

TEST FACILITY DESCRIPTION

The LTV Aeronautics Division High Speed Wind Tunnel is an atmospheric exhaust, blow-down tunnel with a 4- x 4-foot test section size. The Mach number range of the tunnel is from 0.5 to 5.0. Air is stored in six tanks, with a total volume of twenty-eight thousand cubic feet, at a maximum pressure of 600 psia and a nominal temperature of 100 degrees Fahrenheit.

The circuit utilizes both supersonic and transonic test sections, each 4- x 4-foot in cross section and slightly over five feet long. For supersonic operation a single-peak variable diffuser is placed downstream of the supersonic test section. For transonic operation the variable diffuser is removed from the circuit and replaced with a porous wall, transonic test section with 22 percent wall porosity. The transonic plenum is pumped by ejector action of the main tunnel airstream acting on controllable ejector flaps located downstream of the test section. Adjustable choking flaps, also located downstream of the test section, are utilized for subsonic Mach number adjustment.

NOMENCLATURE

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
A_b		base area; m^2 , ft^2 , in^2
a		speed of sound; m/sec, ft/sec
AR	ASPECT	aspect ratio, b^2/S
b	REFB	wing span or reference span; m, ft, in
c		wing chord; m, ft, in
\bar{c}		wing mean aerodynamic chord or reference chord; m, ft, in (see ℓ_{ref} or refl)
c.g.		center of gravity
C. P.		center of pressure
C_A	CA	axial force coefficient, F_A/qS_{ref}
C_{A_b}	CAB	base axial force coefficient, $[(p_\infty - p_b)/q] (A_b/S_{ref})$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_D	CDTOTL	drag force coefficient in the wind axis system, $F_D/q S_{ref}$

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
C_D	CD	drag force coefficient in the stability axis system, $F_D'/q S_{ref}$
C_L	CL	lift force coefficient (stability or wind axis) $F_L/q S_{ref}$
C_l	CBL	rolling moment coefficient in body axis system, $M_x/q S_{ref} b$
$C_{l,s}$	CSL	rolling moment coefficient in the stability axis system, $M_{x,s}/q S_{ref} b$
$C_{l,w}$	CWL	rolling moment coefficient in the wind axis system, $M_{x,w}/q S_{ref} b$
C_m	CLM	pitching moment coefficient in the body axis system, $M_y/q S_{ref} \ell_{ref}$
$C_{m,s}$	CLM	pitching moment coefficient in the stability axis system, $C_{m,s} = C_m$
$C_{m,w}$	CPM	pitching moment coefficient in the wind axis system, $M_{y,w}/q S_{ref} \ell_{ref}$
C_N	CN	normal force coefficient in the body axis system, $F_N/q S_{ref}$

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
C_n	CYN	yawing moment coefficient in the body axis system, $M_z/q S_{ref} b$
$C_{n,s}$	CLN	yawing moment coefficient in the stability axis system, $C_{n,s} = C_n$
$C_{n,w}$	CLN	yawing moment coefficient in the wind axis system, $M_{z,w}/q S_{ref} b$
C_p	CP	pressure coefficient, $(p-p_\infty)/q$
C_y	CY	side force coefficient (body or stability axis system), $F_y/q S_{ref}$
C_c	CC	side force coefficient (wind axis system), $F_y/q S_{ref}$
F_A		axial force; N, lb
F_D		drag force in wind axis system; N, lb
F'_D		drag force in the stability axis system; N, lb
F_L		lift force (stability or wind axis system); N, lb
F_N		normal force; N, lb

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
F_Y		side force; N, lb
	N/A	normal to axial force ratio
ℓ_{ref}	REFL	reference length; m, ft, in (see \bar{c})
L/D	L/D	lift-to-drag ratio, C_L/C_D (stability axis system)
L/D	CL/CD	lift-to-drag ratio, C_L/C_D (wind axis system)
M	MACH	Mach number
MRP	MRP	abbreviation for moment reference point
	XMRP	abbreviation for moment reference point on x-axis
	YMRP	abbreviation for moment reference point on y-axis
	ZMRP	abbreviation for moment reference point on z-axis
M_x		rolling moment in the body axis system; N-m, ft-lb
$M_{x,s}$		rolling moment in the stability axis system; N-m, ft-lb

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
$M_{x,w}$		rolling moment in the wind axis system; N-m, ft-lb
M_y		pitching moment in the body (or stability) axis system; N-m, ft-lb
$M_{y,w}$		pitching moment in the wind axis system; N-m, ft-lb
M_z		yawing moment in the body axis system; N-m, ft-lb
$M_{z,w}$		yawing moment in the wind axis system; N-m, ft-lb
p		static pressure; N/m ² ; psi
P		total pressure; N/m ² ; psi
q	Q(PSI) Q(PSF)	dynamic pressure; N/m ² , psi, psf
RN/L	RN/L	Reynold's number per unit length; million/ft.
S		wing area; m ² , ft ²
S _{ref}	REFS	reference area; m ² , ft ²
T		temperature; °K, °C, °R, °F
V		speed of vehicle relative to surrounding atmosphere; m/sec, ft/sec

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
i_T		tail incidence positive when trailing edge down, deg
\bar{V}		velocity of vehicle relative to surrounding atmosphere; m/sec, ft/sec
α	ALPHA	angle of attack, angle between the projection of the wind X_W -axis on the body X, Z-plane and the body X-axis; deg
β	BETA	sideslip angle, angle between the wind X_W -axis and the projection of this axis on the body X-Z-plane; deg
γ		ratio of specific heats
Γ	DIHDRL	wing dihedral angle; deg
δ		control surface deflection angle; deg
		positive deflections are:
	AILRON	aileron - left aileron trailing edge down
	ELEVTR	elevator - trailing edge down
	RUDDER	rudder - trailing edge to the left
	FLAP	flap - trailing edge down
	TAB	tab - trailing edge down with respect to control surface
		air density; K_g/m^3 , slugs/ft ³

NOMENCLATURE (continued)

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
θ		pitch angle, angle of rotation about the body Y-axis, positive when the positive Z-axis is rotated toward the positive X-axis; deg
ϕ	PHI	roll angle, angle of rotation about the body X-axis, positive when the positive Y-axis is rotated toward the positive Z-axis; deg
ψ	PSI	yaw angle, angle of rotation about the body Z-axis, positive when the positive X-axis is rotated toward the positive Y-axis; deg

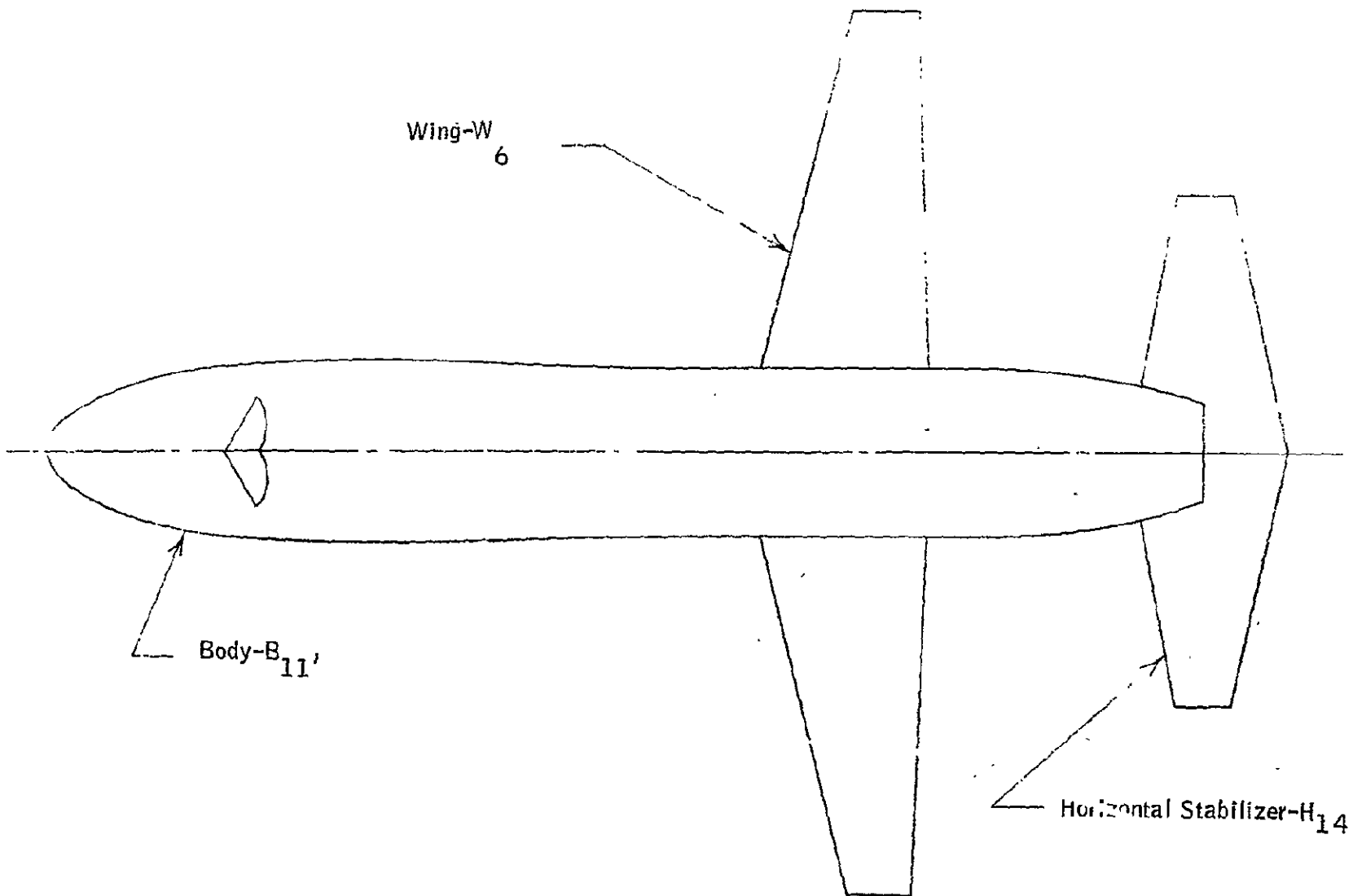
NOMENCLATURE (continued)

<u>SUBSCRIPTS</u>	<u>DEFINITION</u>
a	aileron
b	base
c	canard
e	elevator or elevon
f	flap
r	rudder or ruddervator
s	stability axis system
t	tail, or total conditions
w	wind axis system
ref	reference conditions
∞	freestream condition

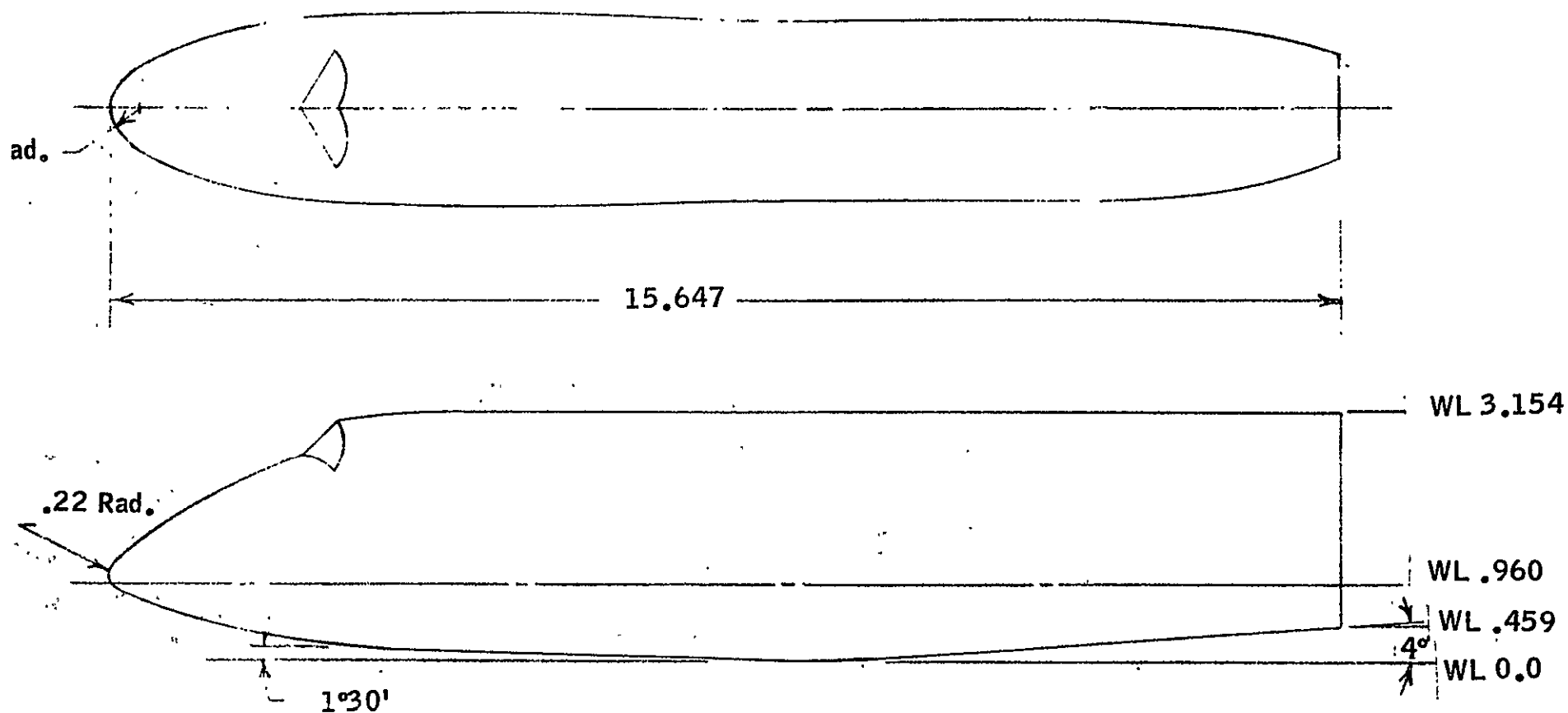
ADDITIONS TO NOMENCLATURE

<u>SYMBOL</u>	<u>SADSAC SYMBOL</u>	<u>DEFINITION</u>
	SEPPOS	parameter name for separation position (see Table 1)
C_{Pb}	CPB	base pressure coefficient, $(P - P_{\infty})/q$
	ALPB	parameter name for booster angle of attack
	BETB	parameter name for booster angle of sideslip

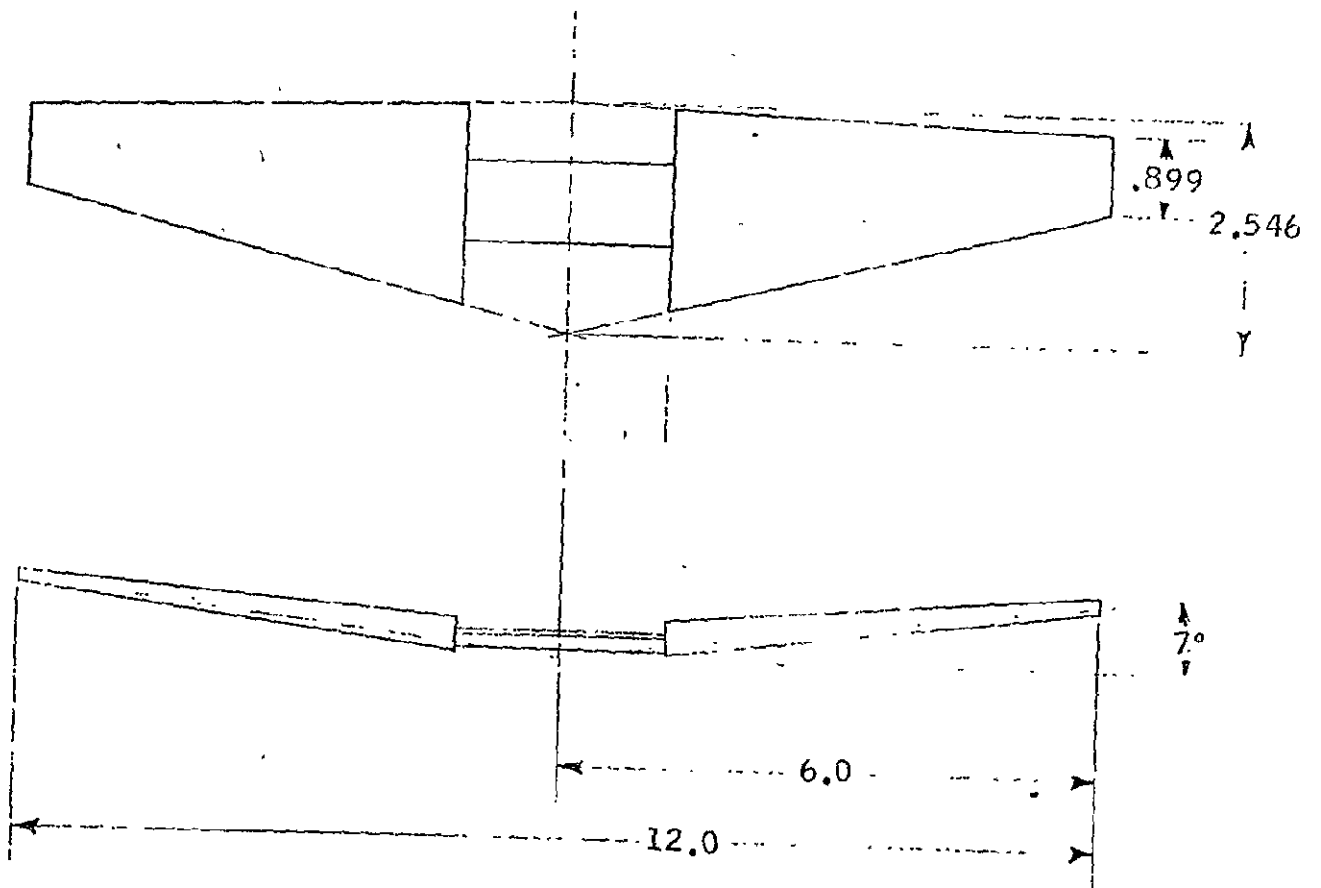
FIGURES AND TABLE



(a) Model Assembly
Figure 1. - 245 Orbiter Configuration, Model S-13A.
All Dimensions are in Inches.



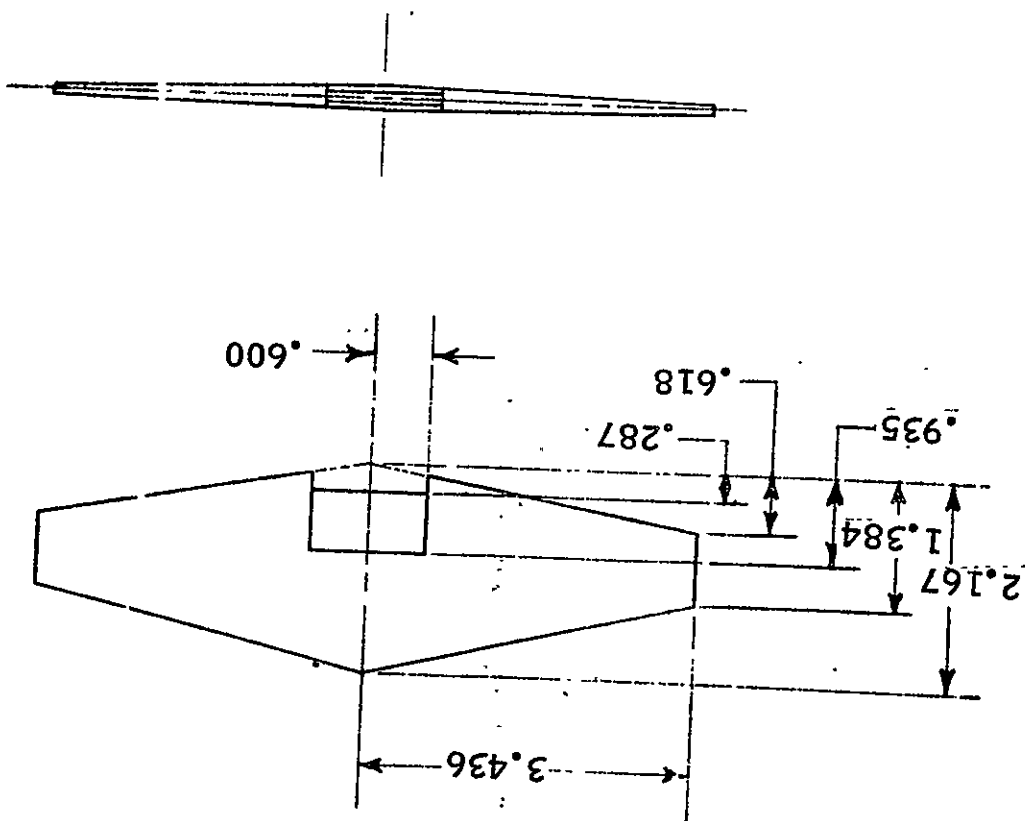
(b) Body - B₁₁
Figure 1. - Continued.

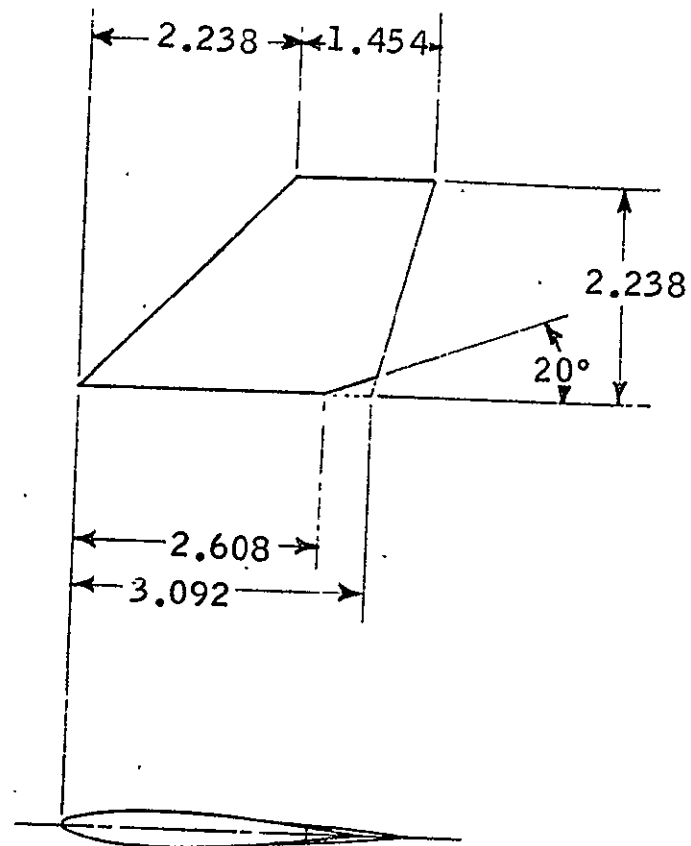


(c) Wing - W₆

Figure 1. - Continued.

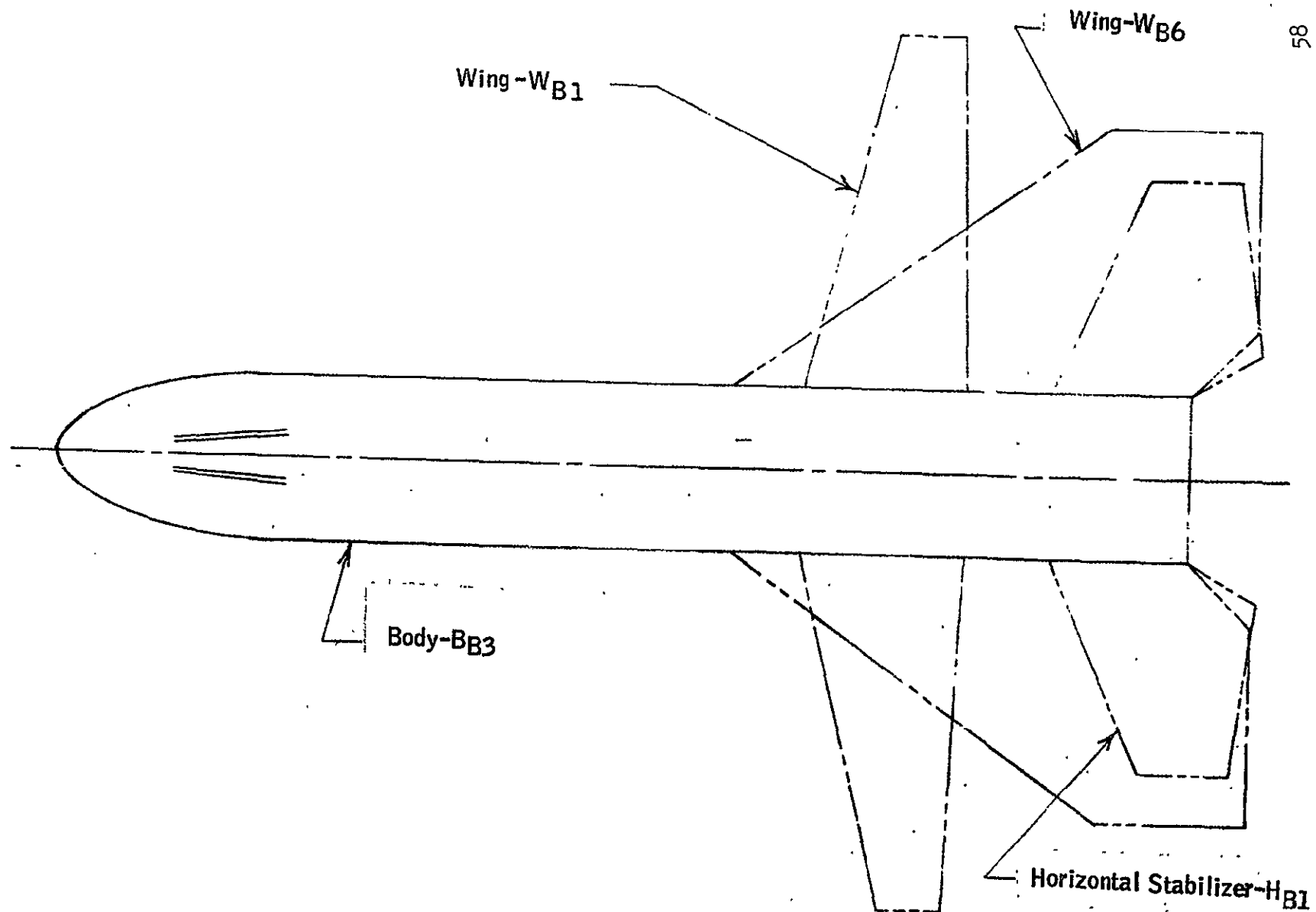
(d) Horizontal stabilizer - H₁₄
Figure 1. - Continued.



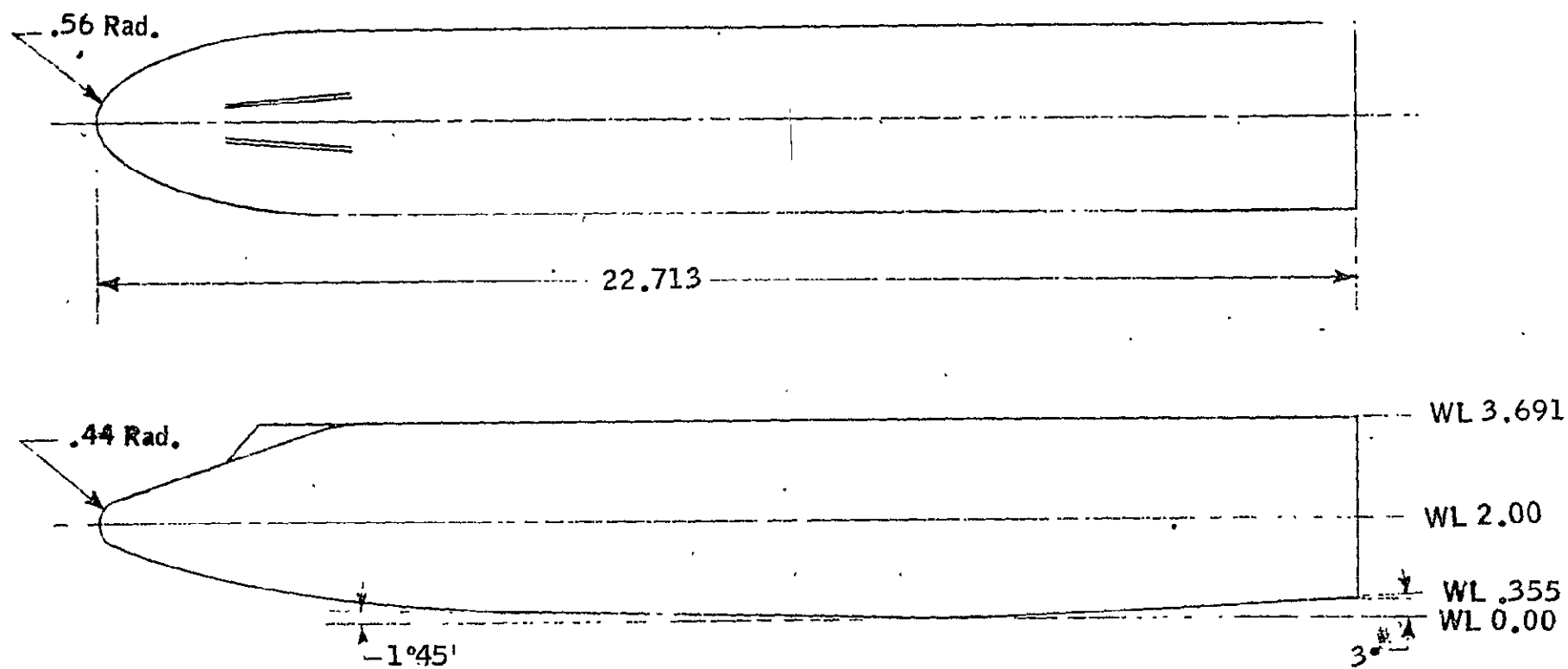


(e) Vertical tail - V₅

Figure 1. - Concluded.

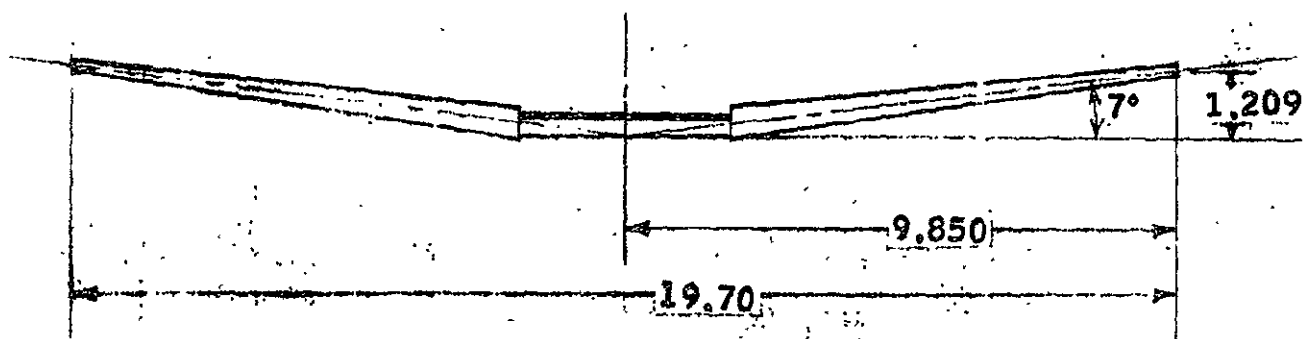
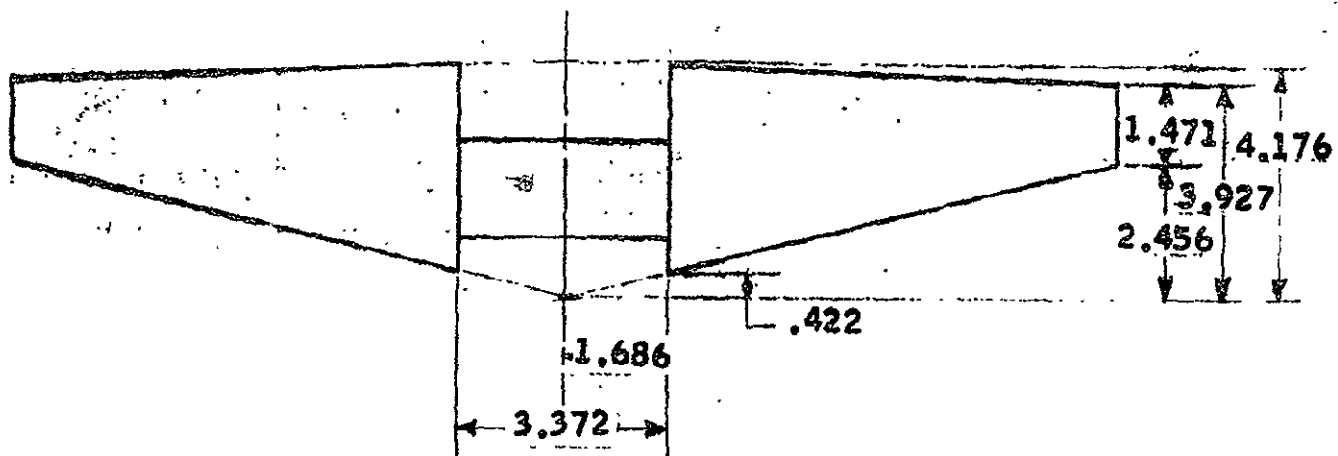


(a) Model Assembly
Figure 2. - 251 Booster Configuration, Model SB-13A. All Dimensions are in Inches.

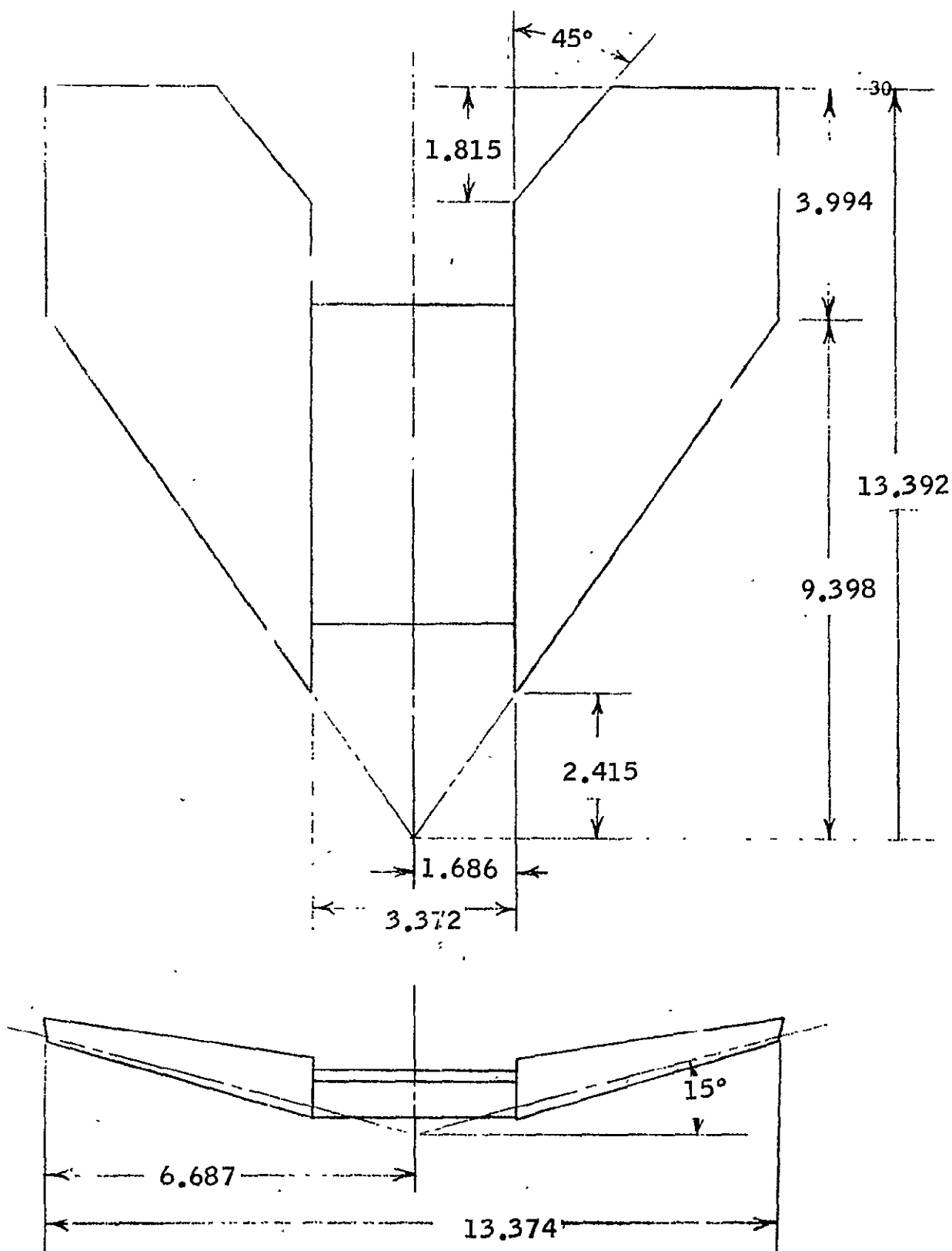


(b) Body - B_{B3}

Figure 2. - Continued.

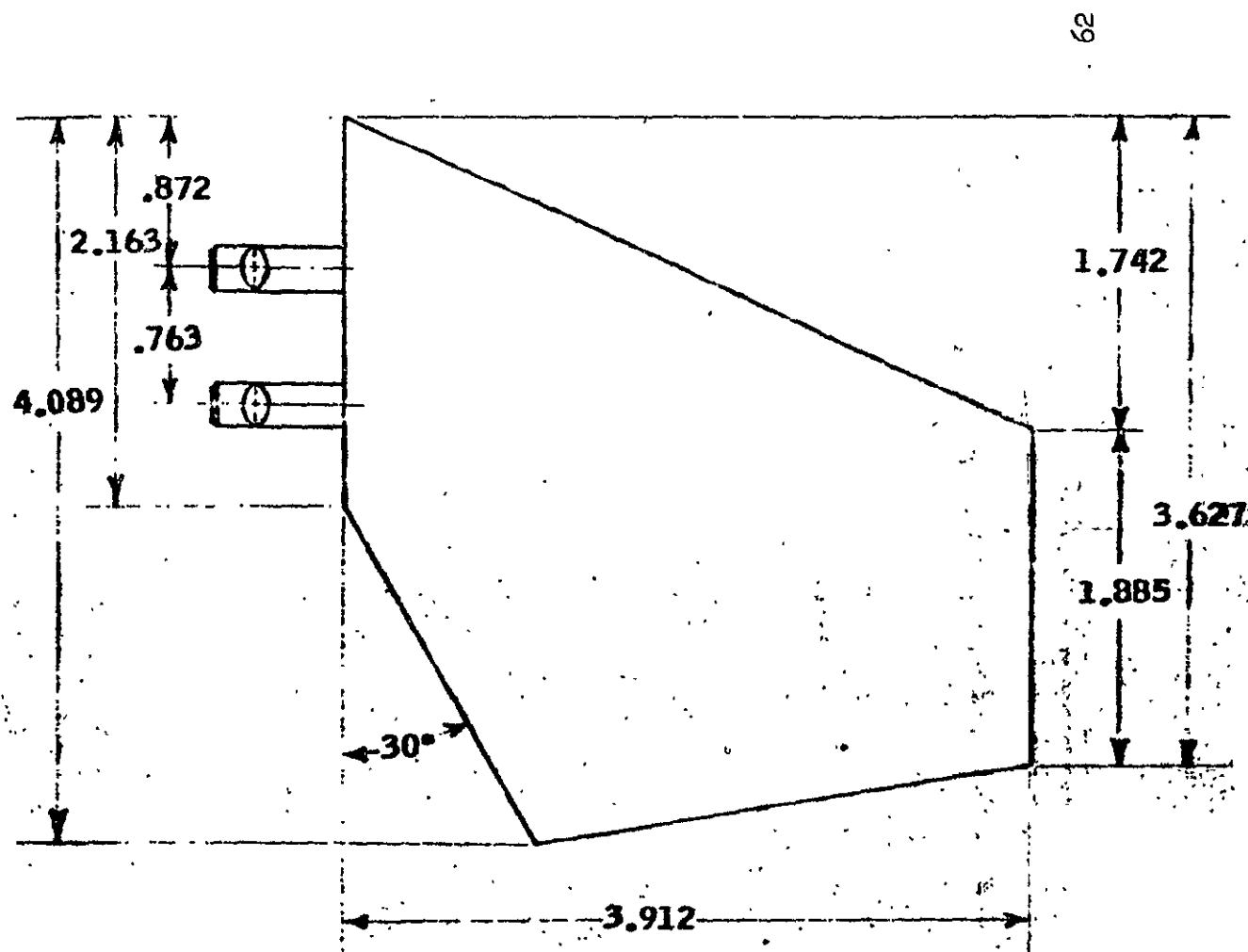
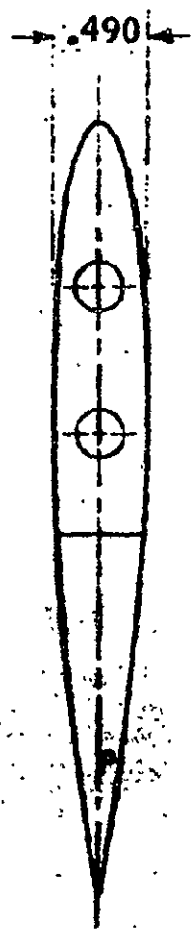


(c) Wing - W
B1
Figure 2. - Continued.



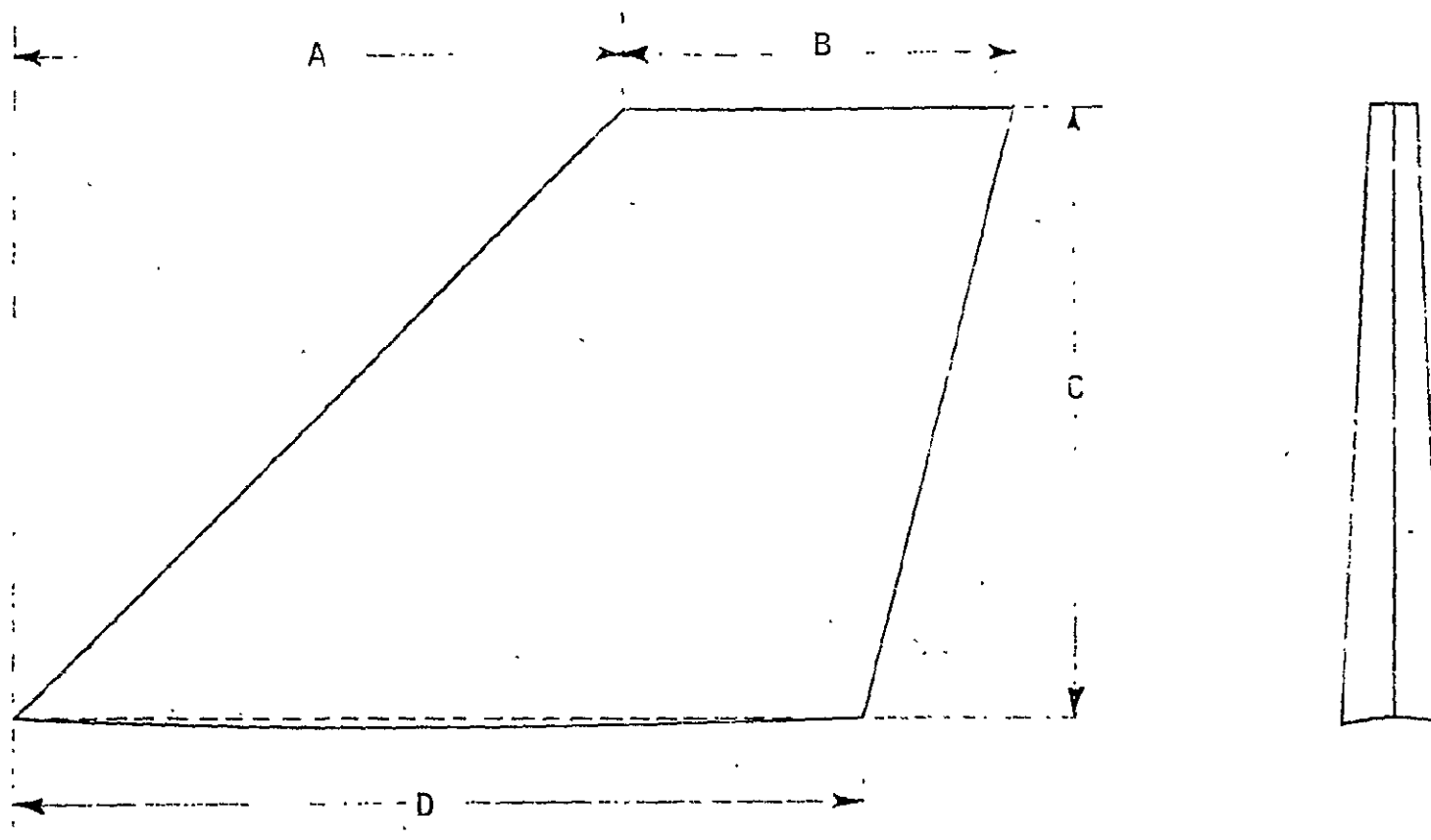
(d) Wing-WB6

Figure 2. - Continued.



(e) Horizontal stabilizer - H
B1

Figure 2. - Continued.

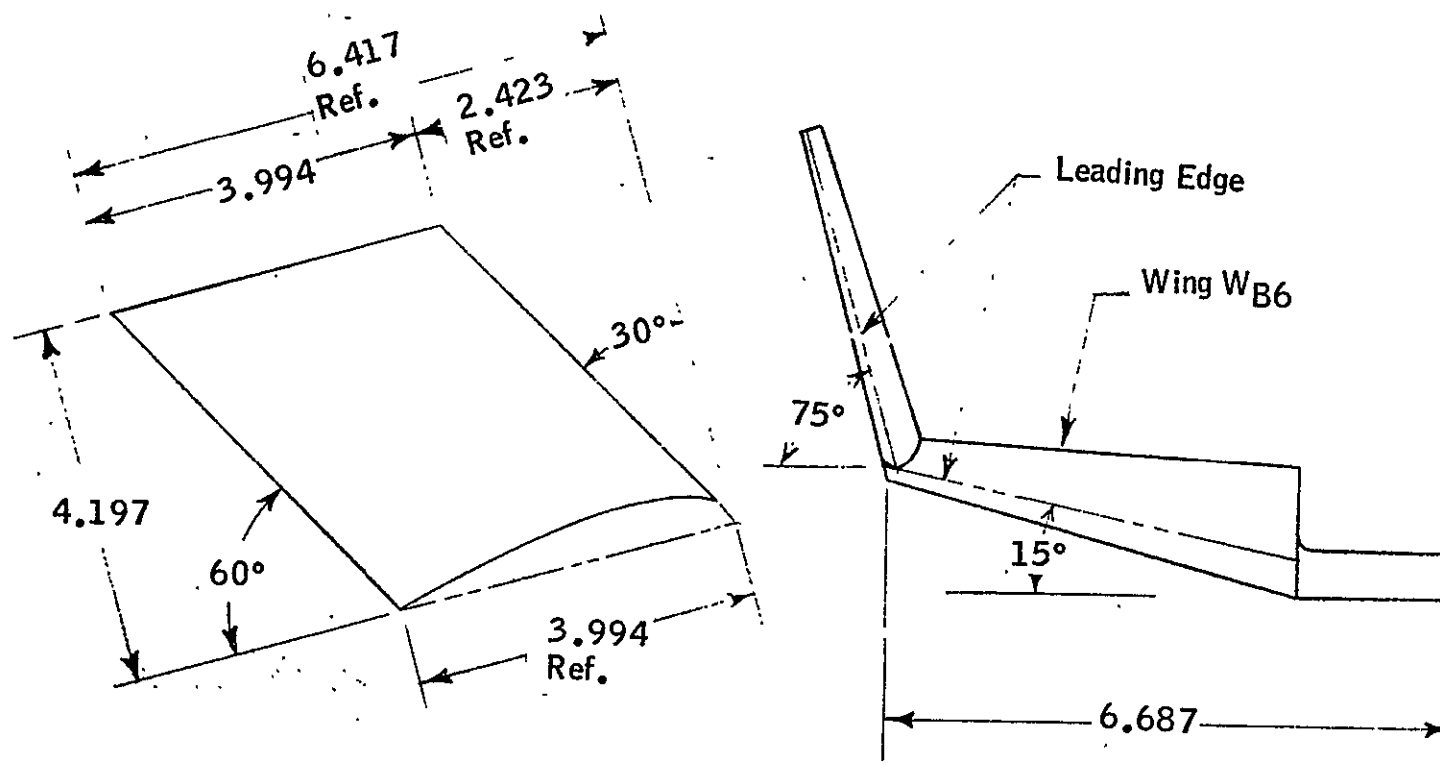


Tail	A	B	C	D
V_{B1}	3.3310	2.1150	3.3310	4.6340
V_{B5}^*	6.9070	2.7490	6.9070	5.6520

- * NOT APPLICABLE TO THIS TEST

(f) Vertical tail - V_{B1} , V_{B5}

Figure 2. - Continued. -



(g) Vertical - V_{B6}
Figure 2. - Concluded.

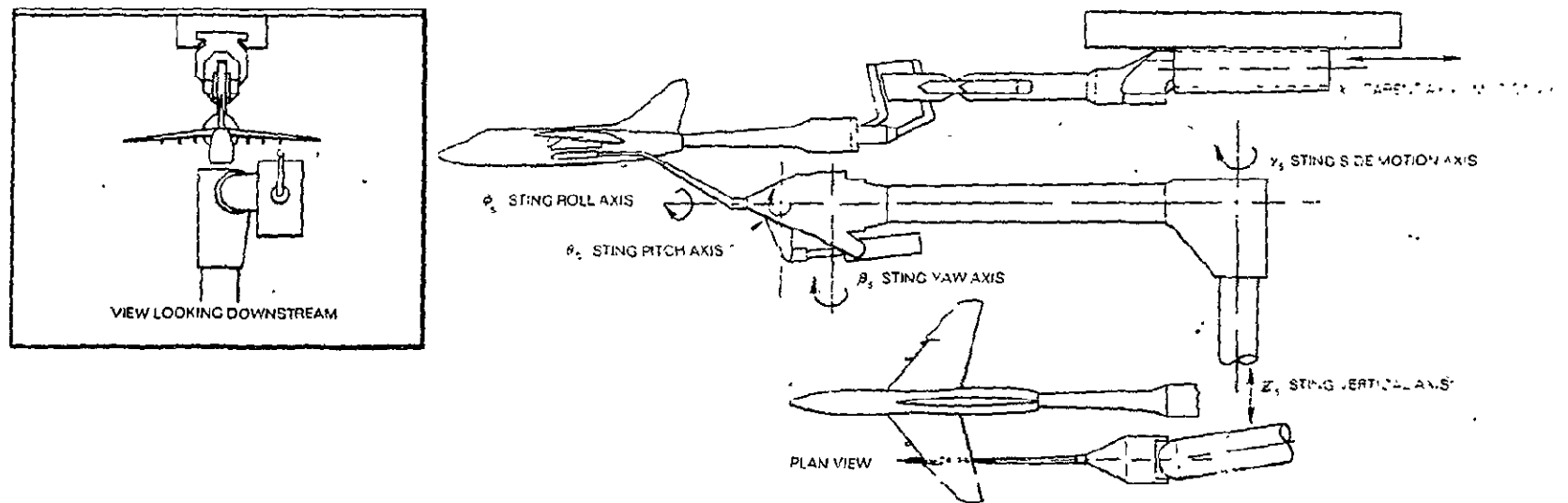


Figure 3.- LTV 4-foot high speed wind tunnel dual support system.

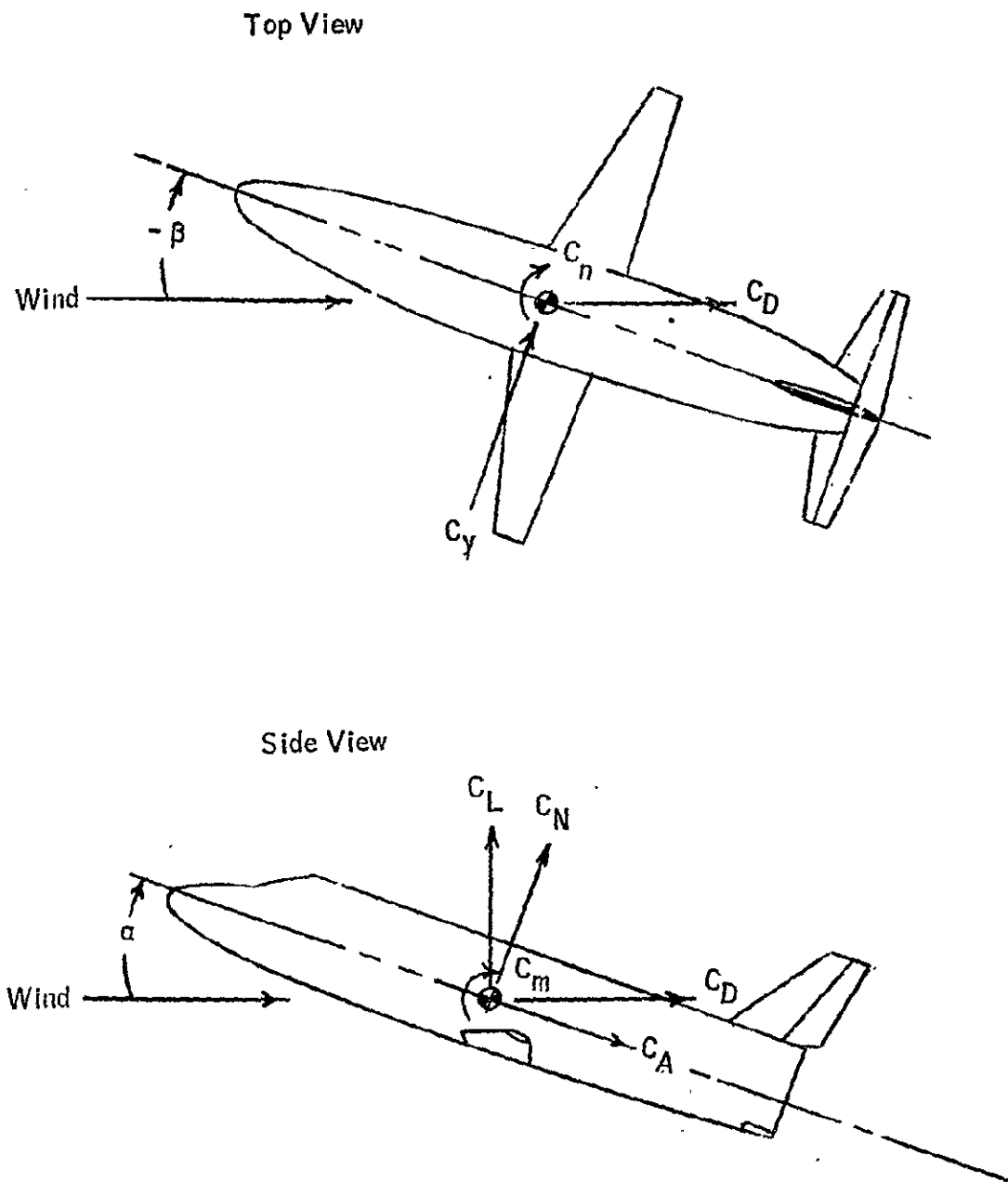


Figure 4. - Coefficient and angle definition.

Notes:

1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrows.
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity.

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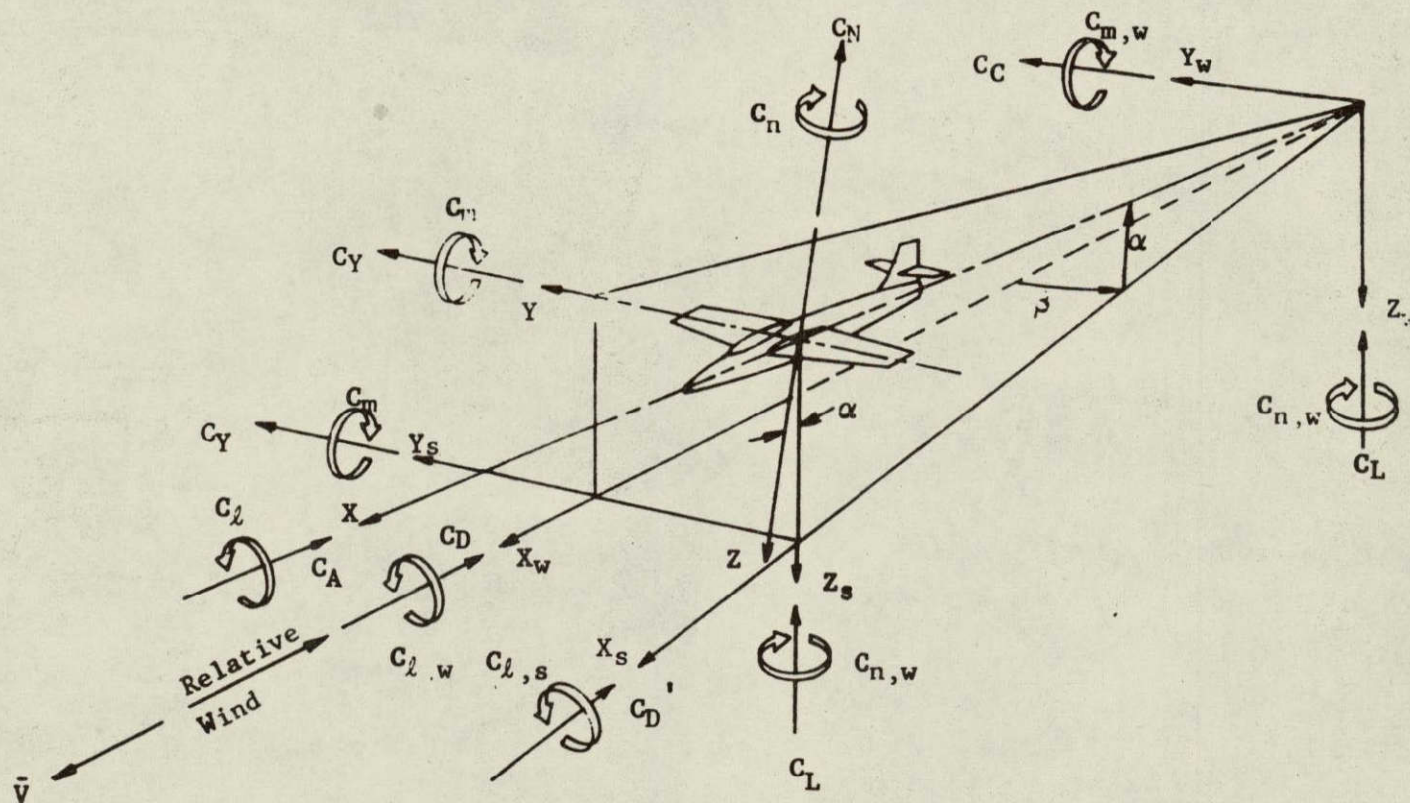
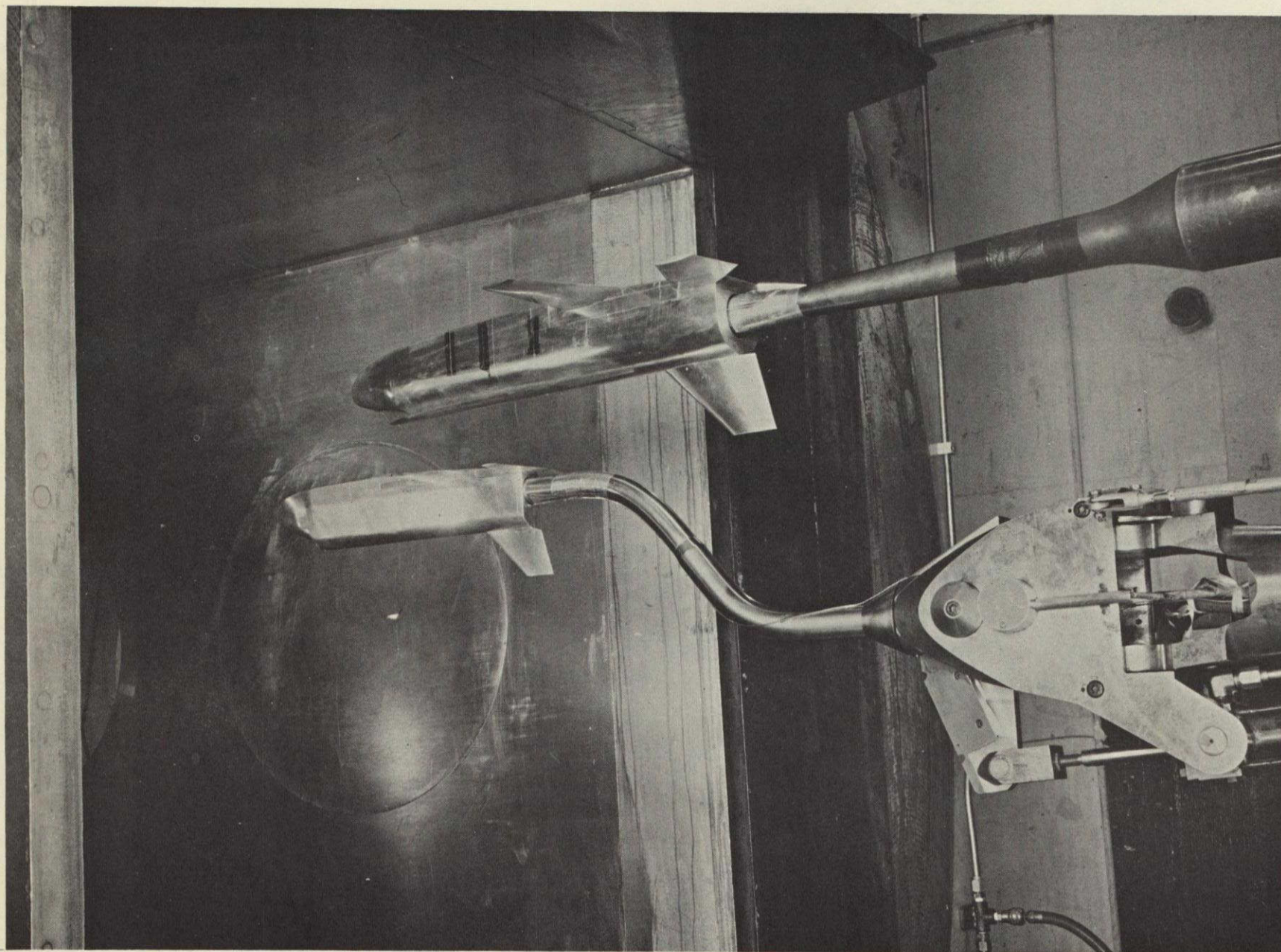


FIGURE 5. Axis systems, showing direction and sense of force and moment coefficients, angle of attack, and sideslip angle

NOT REPRODUCIBLE



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Figure 6.- $B_{11}W_6H_{14}V_5$ and $B_{B3}W_{B1}H_{B1}V_{B1}$ installed in wind tunnel.

TABLE 1. - SEPARATION POSITIONS

POSITION NO.	TUNNEL COORDINATES		NONDIMENSIONAL COORDINATES	
	ΔX , in	ΔZ , in	$\Delta X/\ell_B$	$\Delta Z/\ell_B$
1	6.001	4.002	.2642	.1762
2	8.999	4.002	.3962	.1762
3	11.999	4.002	.5283	.1762
4	6.001	6.001	.2642	.2642
5	8.999	6.001	.3962	.2642
6	11.999	6.001	.5283	.2642
7	6.001	8.999	.2642	.3962
8	8.999	8.999	.3962	.3962
9	14.000	8.999	.6164	.3962
10	6.001	12.0/11.0	.2642	.5283/.4843
11	8.999	12.0/11.0	.3962	.5283/.4843
12	14.000	12.0/11.0	.6164	.5283/.4843
13	6.001	3.4	.2642	.1497
14	8.999	3.4	.3962	.1497
15	Freestream		Freestream	

NOTE: Position No. 10 utilized ΔZ of 12.0 inches when booster $\alpha = 0^\circ$ and -5° and a ΔZ of 11.0 inches when booster $\alpha = +5^\circ$.

Positions No. 13 and 14 are orbiter/booster mated positions with ΔX and ΔZ measured relative to the booster body axis.

ℓ_B is the booster body length (Model = 22.713 in.)

REFERENCES

1. Romere, Paul O.; Pretest Report for the 0.0088105-scale MSC Orbiter/Booster Separation Test S-XXVIII, MSC memorandum number EX24/7007-249C, dated July 27, 1970.
2. Arnold, J. W.; High Speed Wind Tunnel, Facility Handbook; Publication Number AER-EIR-13553-B; Vought Aeronautics Division, LTV Aerospace Corporation.
3. Stress Analysis of the 251 Rev. B. Booster, Model SB-13A, .0088105 Scale; MSC Drawing No. SKY 37100382; dated July, 1970.
4. Stress Analysis of the 245 Orbiter Model S-13A, .0088105; MSC Drawing No. SKY 37100383; dated July 7, 1970.

DATA DISPLAY INDEX

DATA PLOT INDEX

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE,

DATASETS PLOTTED	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
RCH001	CA	ALPHA	1	4
RCH001	CN	ALPHA	5	8
RCH001	CLM	ALPHA	9	12
RCH005	CA	ALPHA	13	15
RCH005	CN	ALPHA	16	18
RCH005	CLM	ALPHA	19	21
RCH003	CA	ALPHA	22	24
RCH003	CN	ALPHA	25	27
RCH003	CLM	ALPHA	28	30
RCH007	CA	ALPHA	31	34
RCH007	CN	ALPHA	35	38
RCH007	CLM	ALPHA	39	42
RCH006	CA	ALPHA	43	45
RCH006	CN	ALPHA	46	48
RCH006	CLM	ALPHA	49	51
RCH010	CA	ALPHA	52	54
RCH010	CN	ALPHA	55	57
RCH010	CLM	ALPHA	58	60
RCH012	CA	ALPHA	61	64
RCH012	CN	ALPHA	65	68
RCH012	CLM	ALPHA	69	72
RCH015	CA	ALPHA	73	75
RCH015	CN	ALPHA	76	78
RCH015	CLM	ALPHA	79	81
RCH011	CA	ALPHA	82	84
RCH011	CN	ALPHA	85	87
RCH011	CLM	ALPHA	88	90

DATA PLOT INDEX

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORR R11W6H14V5, BETA = 0

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE,

DATASETS PLOTTED	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
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RCH032	CA	ALPHA	91	94
RCH032	CN	ALPHA	95	98
RCH032	CLM	ALPHA	99	102
RCH036	CA	ALPHA	103	105
RCH036	CN	ALPHA	106	108
RCH036	CLM	ALPHA	109	111
RCH034	CA	ALPHA	112	114
RCH034	CN	ALPHA	115	117
RCH034	CLM	ALPHA	118	120
RCH038	CA	ALPHA	121	124
RCH038	CN	ALPHA	125	128
RCH038	CLM	ALPHA	129	132
RCH037	CA	ALPHA	133	135
RCH037	CN	ALPHA	136	138
RCH037	CLM	ALPHA	139	141
RCH041	CA	ALPHA	142	144
RCH041	CN	ALPHA	145	147
RCH041	CLM	ALPHA	148	150
RCH043	CA	ALPHA	151	154
RCH043	CN	ALPHA	155	158
RCH043	CLM	ALPHA	159	162
RCH046	CA	ALPHA	163	165
RCH046	CN	ALPHA	166	168
RCH046	CLM	ALPHA	169	171
RCH042	CA	ALPHA	172	174
RCH042	CN	ALPHA	175	177
RCH042	CLM	ALPHA	178	180

DATA PLOT INDEX

LONG AERO CHARACT OF ORB 811W6H14V5 OUTSIDE PRESENCE OF A BOOSTER, BETA = 0

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, PARAMETRIC STUDY

DATASETS PLOTTED:

RCH029 RCH030 RCH031

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CA	ALPHA	181	181
CN	ALPHA	182	182
CLM	ALPHA	183	183

DATA PLOT INDEX

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 OUTSIDE PRESENCE OF AN ORBITER, $M_{L1A} = 0$

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, PARAMETRIC STUDY

DATASETS PLOTTED:
RCH100 RCH101 RCH102

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CA	ALPHA	184	184
CN	ALPHA	185	185
CLM	ALPHA	186	186

DATA PLOT INDEX

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3W81HB1; BETA = 0

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE.

DATASETS PLOTTED	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
RCH103	CA	ALPHA	187	187
RCH103	CN	ALPHA	188	188
RCH103	CLM	ALPHA	189	189
RCH104	CA	ALPHA	190	190
RCH104	CN	ALPHA	191	191
RCH104	CLM	ALPHA	192	192
RCH105	CA	ALPHA	193	193
RCH105	CN	ALPHA	194	194
RCH105	CLM	ALPHA	195	195

DATA PLOT INDEX

LONG AERO CHARACT OF BOOSTER BB3NB1HB; MATED WITH ORBITER B11W6H14V5; BETA = 0

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE

DATASETS PLOTTED	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
RCH106	CA	ALPHA	196	196
RCH106	CN	ALPHA	197	197
RCH106	CLM	ALPHA	198	198
RCH107	CA	ALPHA	199	199
RCH107	CN	ALPHA	200	200
RCH107	CLM	ALPHA	201	201
RCH108	CA	ALPHA	202	202
RCH108	CN	ALPHA	203	203
RCH108	CLM	ALPHA	204	204

DATA PLOT INDEX

LAT AND DIRECT AERO CHARACT OF ORB 811W6H14V5 IN PRESENCE OF BOOST 883W01HB1VB1

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE.

DATASETS PLOTTED	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
RCH002	CY	BETA	205	205
RCH002	CYN	BETA	206	206
RCH002	CBL	BETA	207	207
RCH008	CY	BETA	208	208
RCH008	CYN	BETA	209	209
RCH008	CBL	BETA	210	210
RCH013	CY	BETA	211	211
RCH013	CYN	BETA	212	212
RCH013	CBL	BETA	213	213
RCH004	CY	BETA	214	214
RCH004	CYN	BETA	215	215
RCH004	CBL	BETA	216	216
RCH009	CY	BETA	217	217
RCH009	CYN	BETA	218	218
RCH009	CBL	BETA	219	219
RCH014	CY	BETA	220	220
RCH014	CYN	BETA	221	221
RCH014	CBL	BETA	222	222

DATA PLOT INDEX

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRFSENCE OF ORB B11W6H14V5

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE,

DATASETS PLOTTED	DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
RCH033	CY	BETA	223	223
RCH033	CYN	BETA	224	224
RCH033	CBL	BETA	225	225
RCH039	CY	BETA	226	226
RCH039	CYN	BETA	227	227
RCH039	CBL	BETA	228	228
RCH044	CY	BETA	229	229
RCH044	CYN	BETA	230	230
RCH044	CBL	BETA	231	231
RCH035	CY	BETA	232	232
RCH035	CYN	BETA	233	233
RCH035	CBL	BETA	234	234
RCH040	CY	BETA	235	235
RCH040	CYN	BETA	236	236
RCH040	CBL	BETA	237	237
RCH045	CY	BETA	238	238
RCH045	CYN	BETA	239	239
RCH045	CBL	BETA	240	240

DATA PLOT INDEX

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB

DEPENDENT VARIABLE VS INDEPENDENT VARIABLE, MULTIPLE DATASETS

DATASETS PLOTTED:

RCH109 RCH110

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CY	BETA	241	241
CYN	BETA	242	242
CBL	BETA	243	243

DATASETS PLOTTED:

RCH112 RCH111

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CY	BETA	244	244
CYN	BETA	245	245
CBL	BETA	246	246

DATASETS PLOTTED:

RCH113 RCH114

DEPENDENT VARIABLE	INDEPENDENT VARIABLE	PLOT PAGE BEGINNING / ENDING	
CY	BETA	247	247
CYN	BETA	248	248
CBL	BETA	249	249

TABULATED DATA LISTING

A tabulated data listing, consisting of all aero data sets, both original and those created in arriving at the plotted material to be presented subsequently, is available as an addendum to this report. The tabular listing is made up in three sections:

- (a) a brief summary list of all data sets containing the identifier, the descriptor, and the resident dependent variables.
- (b) an expanded list of all data sets, containing the identifier, the descriptor, the resident dependent variables, reference data, parameters and respective values, and independent variable ranges.
- (c) the full list of all data sets containing all resident or selected aerodynamic coefficients of the data sets as well as the above mentioned information.

The listing is currently sent on limited distribution to the following organizations:

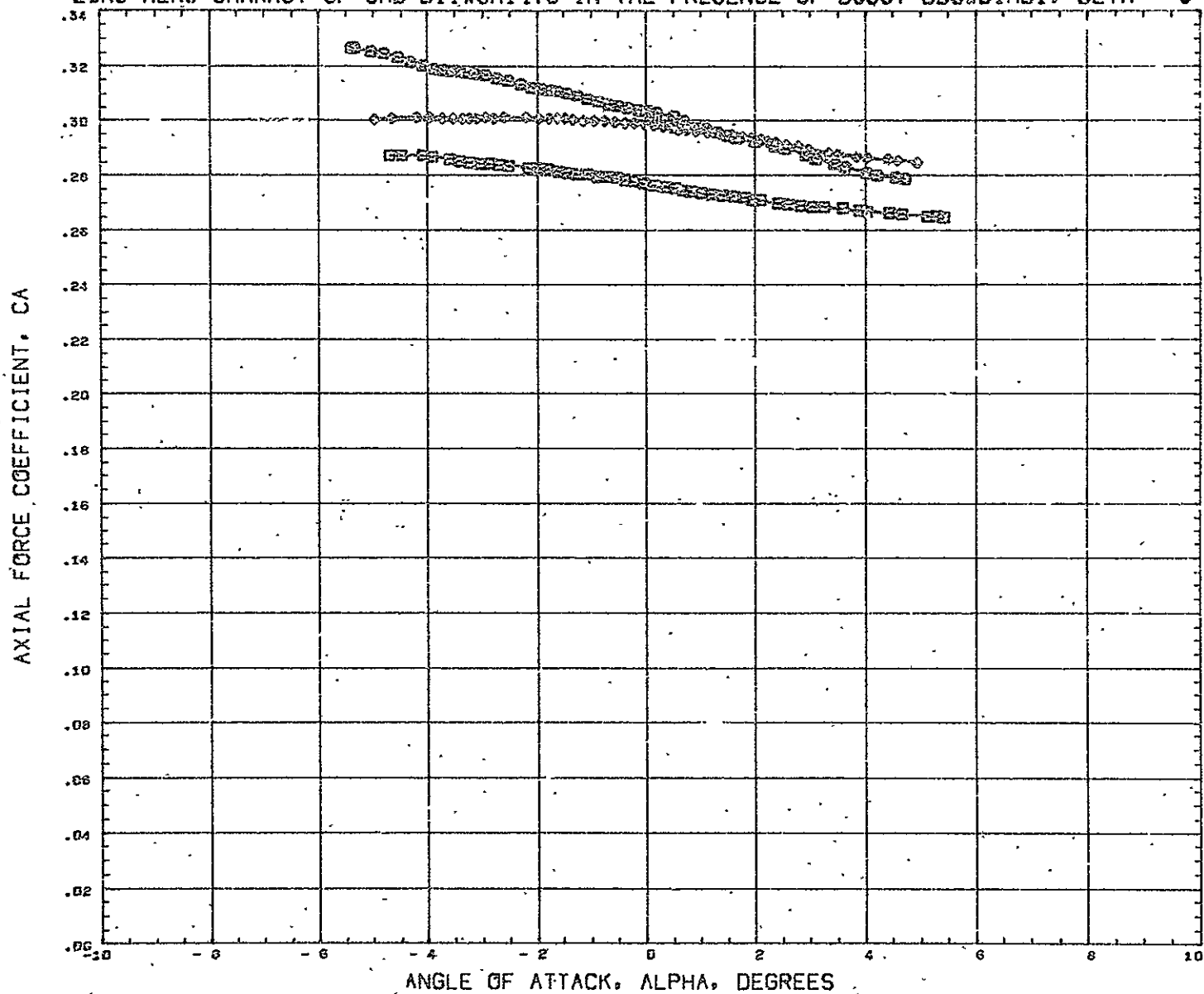
NASA AMES	Mr. John Axelson
NASA LaRC	Mr. David Stone
NASA MSC	Mr. Ray Nelson
NASA MSFC	Mr. Jim Weaver

If copies of this listing are desired, please contact the above or the cognizant SADSAC personnel who, for this data, is:

A. D. Martin
Department 2780
Chrysler Corporation Space Division
New Orleans, La. 70129

(504) 255-2304

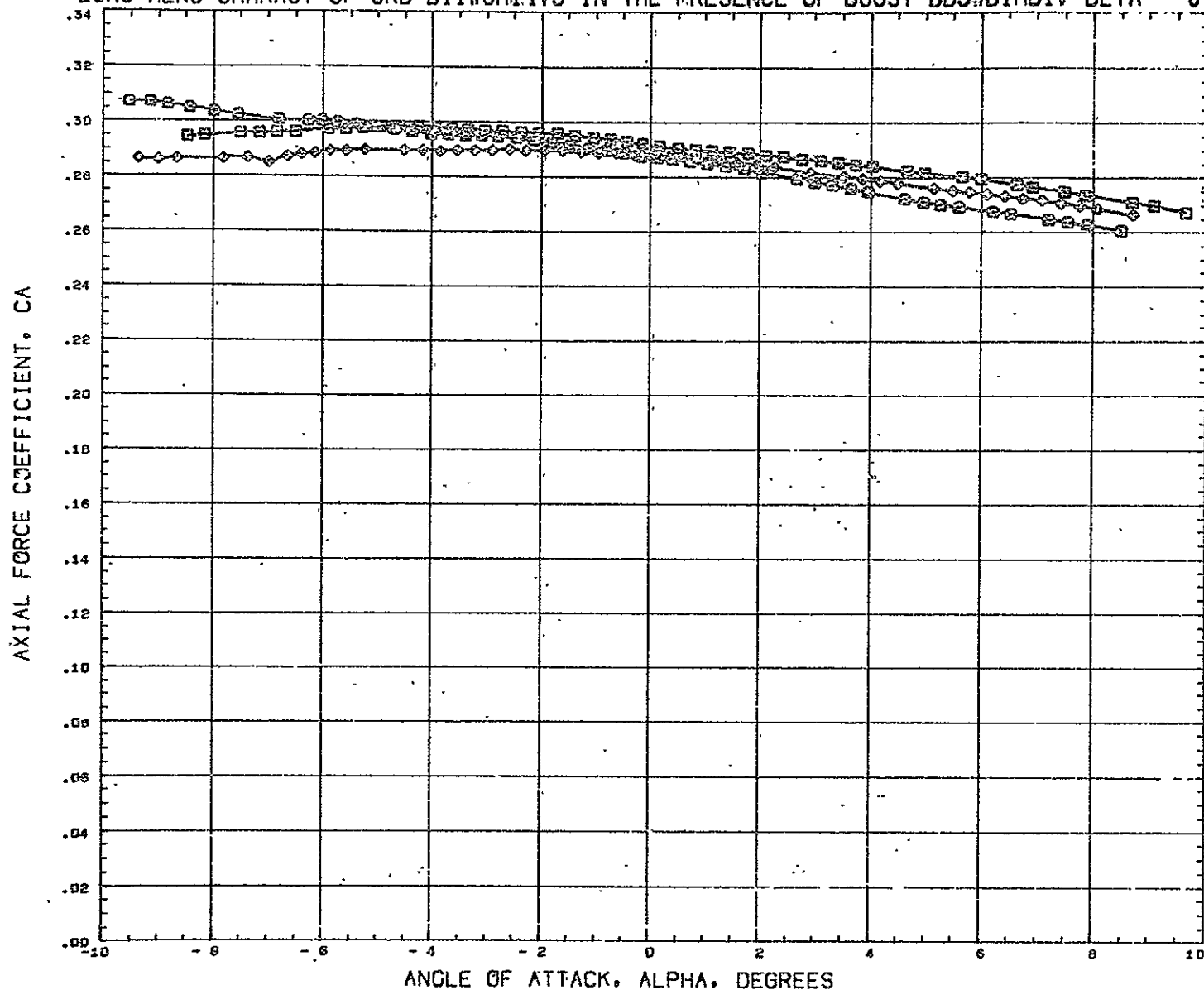
LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
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□	2.000	ALFS	0.000	BETB	0.000	REFL	1.8540	IN
○	3.000					REFB	12.0000	IN
						XNRP	9.3880	IN
						YNRP	0.0000	IN
						ZNRP	1.4600	IN
						SCALE	0.0088	

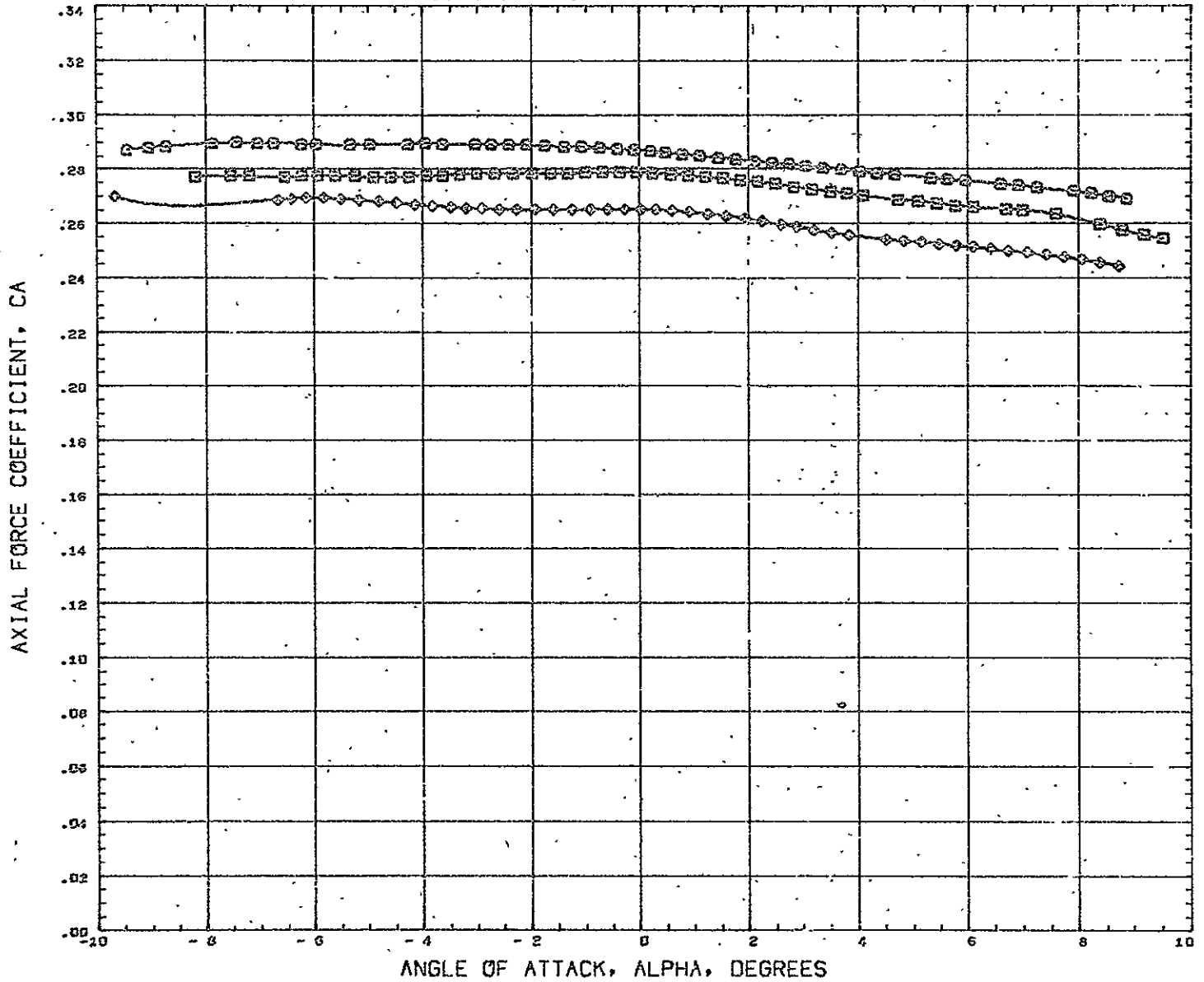
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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
□	SEFFOS	BETA	0.000	MACH	1.810	REFS	20.6640	SG IN
□	5.000	ALPB	0.000	BETB	0.000	REFL	1.8540	IN
◇	6.000					REFB	12.0000	IN
						XNRP	9.3880	IN
						YNRP	0.0000	IN
						ZHRP	1.4600	IN
						SCALE	0.0088	
REFERENCE FILE		.0000						

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

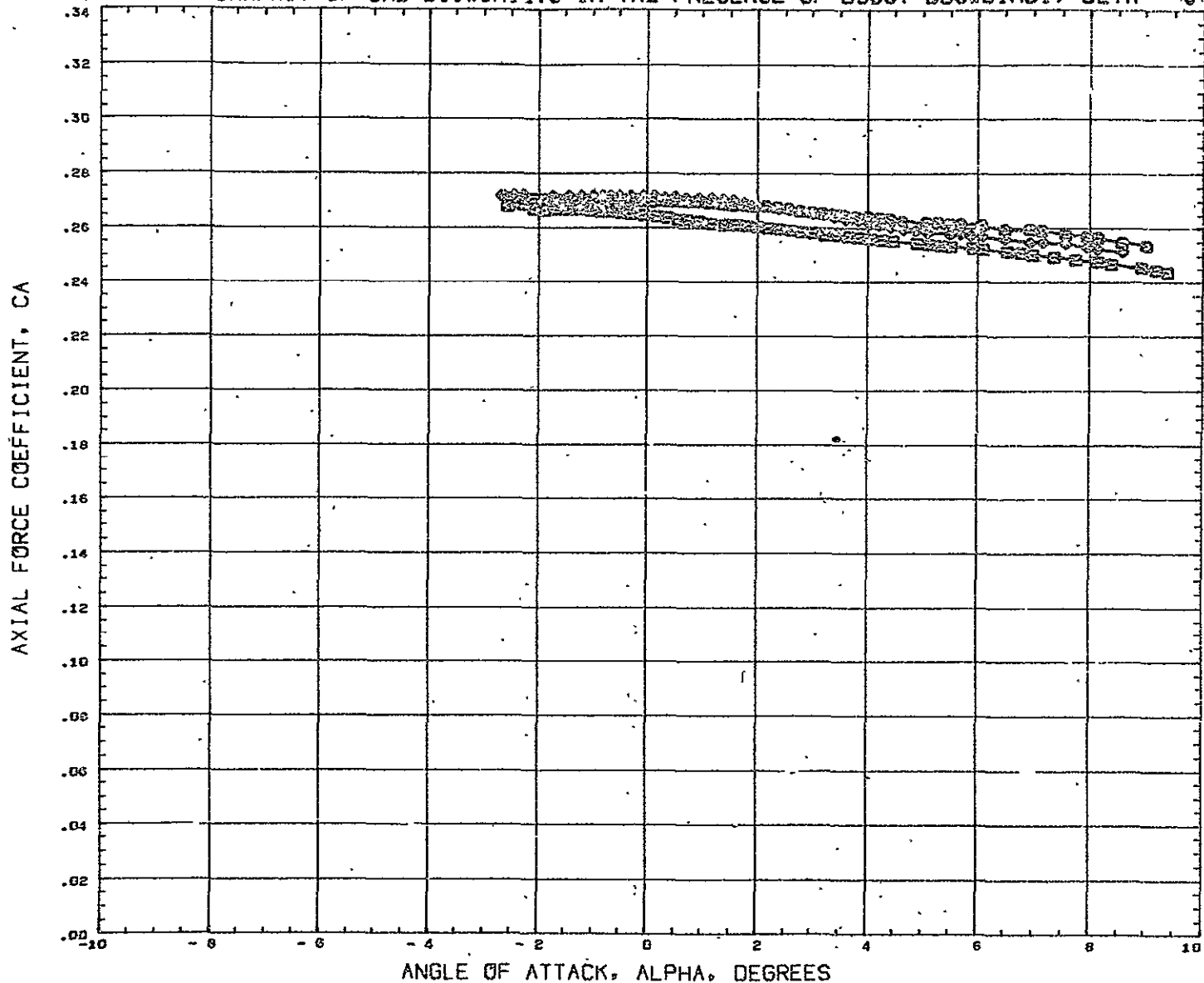


SYMBOL	SEFFOS	PARAMETRIC VALUES			
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□	8.000	ALPB	0.000	BETB	0.000
◇	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0.



SYMBOL	SEFFOS		PARAMETRIC VALUES				REFERENCE INFORMATION		
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□	11.000	ALPB	0.000	BETB	0.000		REFL	1.8540	IN
◇	12.000						REFB	12.0000	IN
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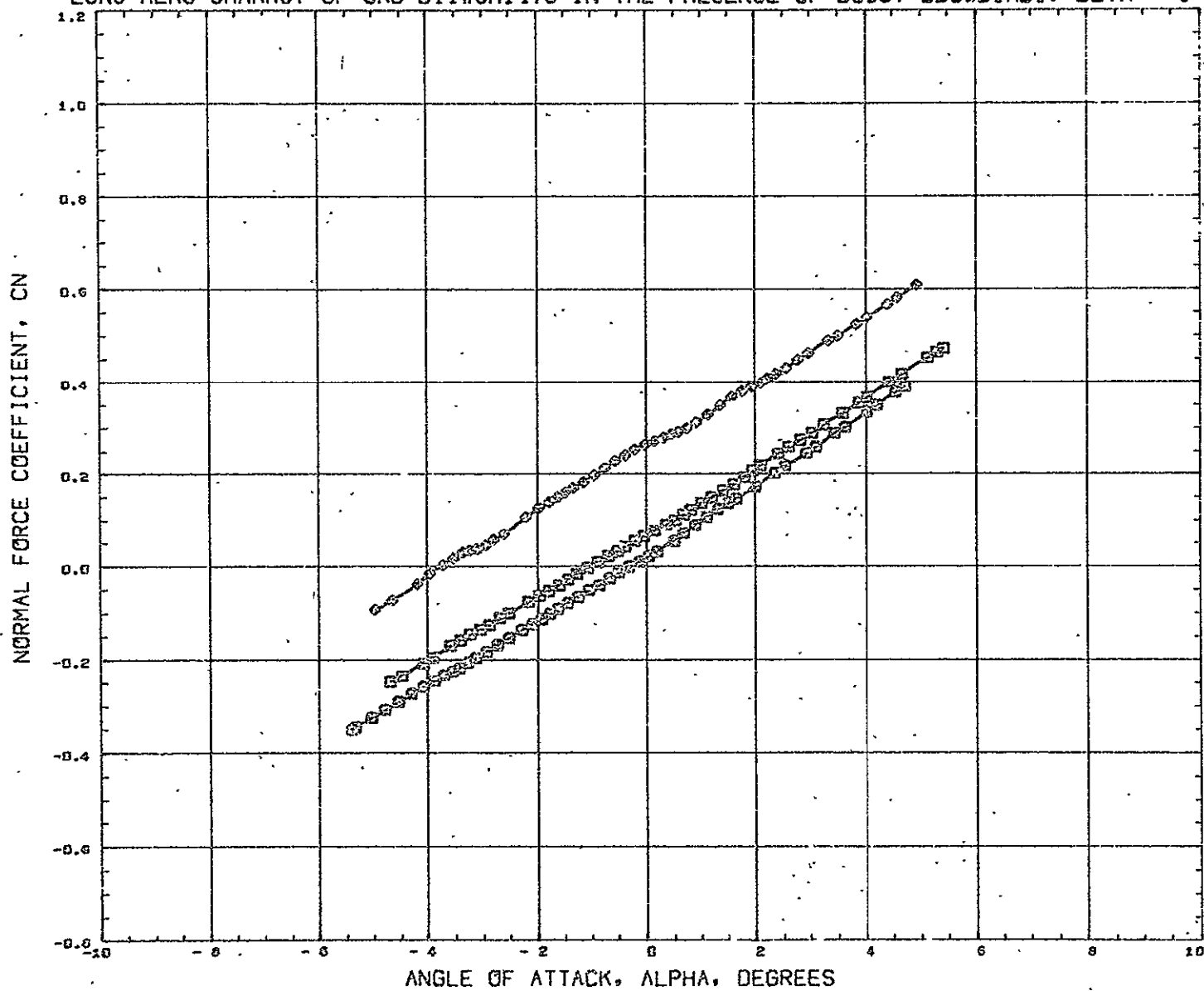
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MSC S-28 ORBITER B11W6H14V5 NEAR BB3WB1HB1

(RCH001) 22 JAN 71 PAGE

4

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

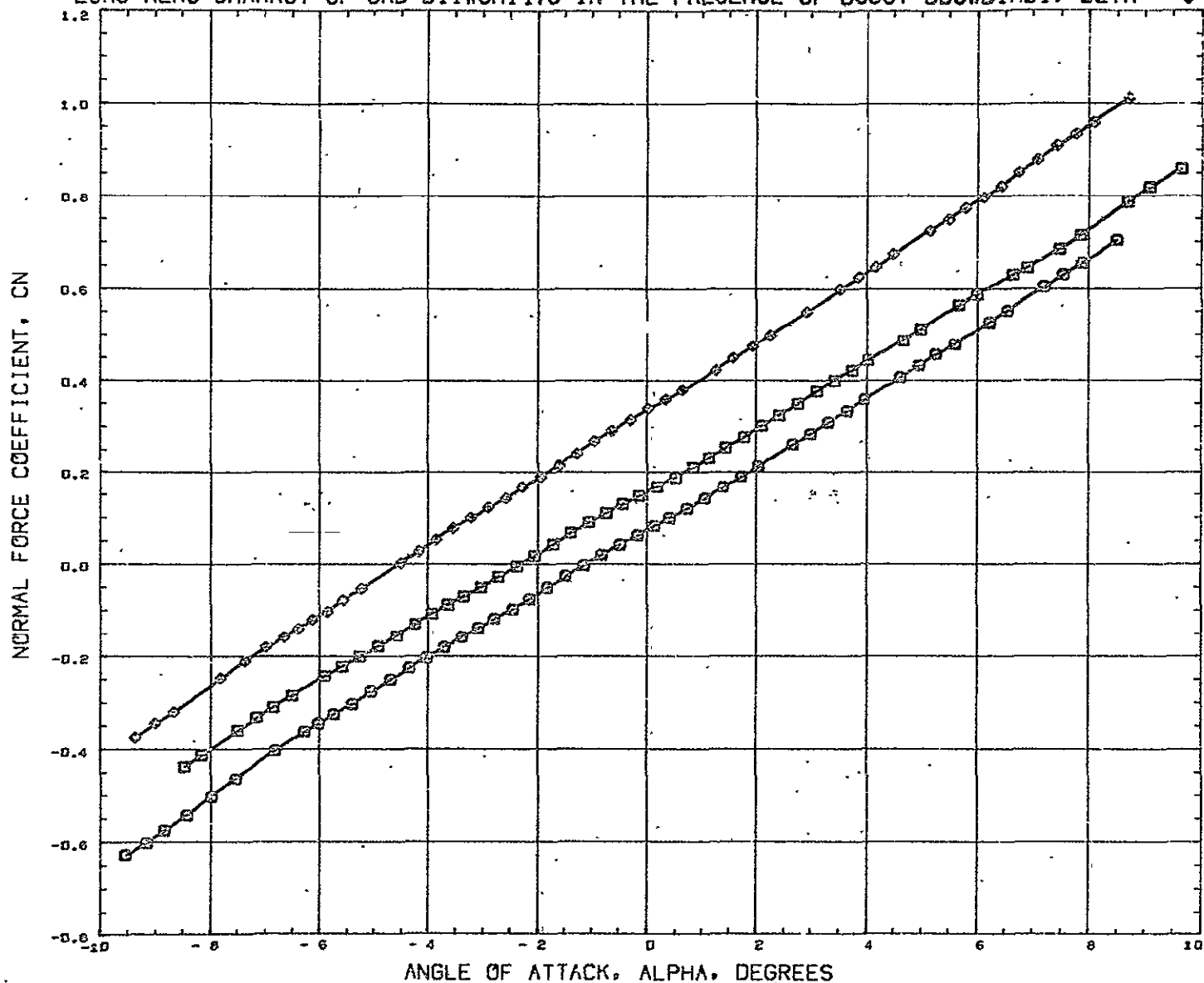


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	1.000	BETA	0.000	MACH	1.810
◇	2.000	ALPB	0.000	BETB	0.000
○	3.000				

REFERENCE INFORMATION		
REFS	20.6640	sq IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

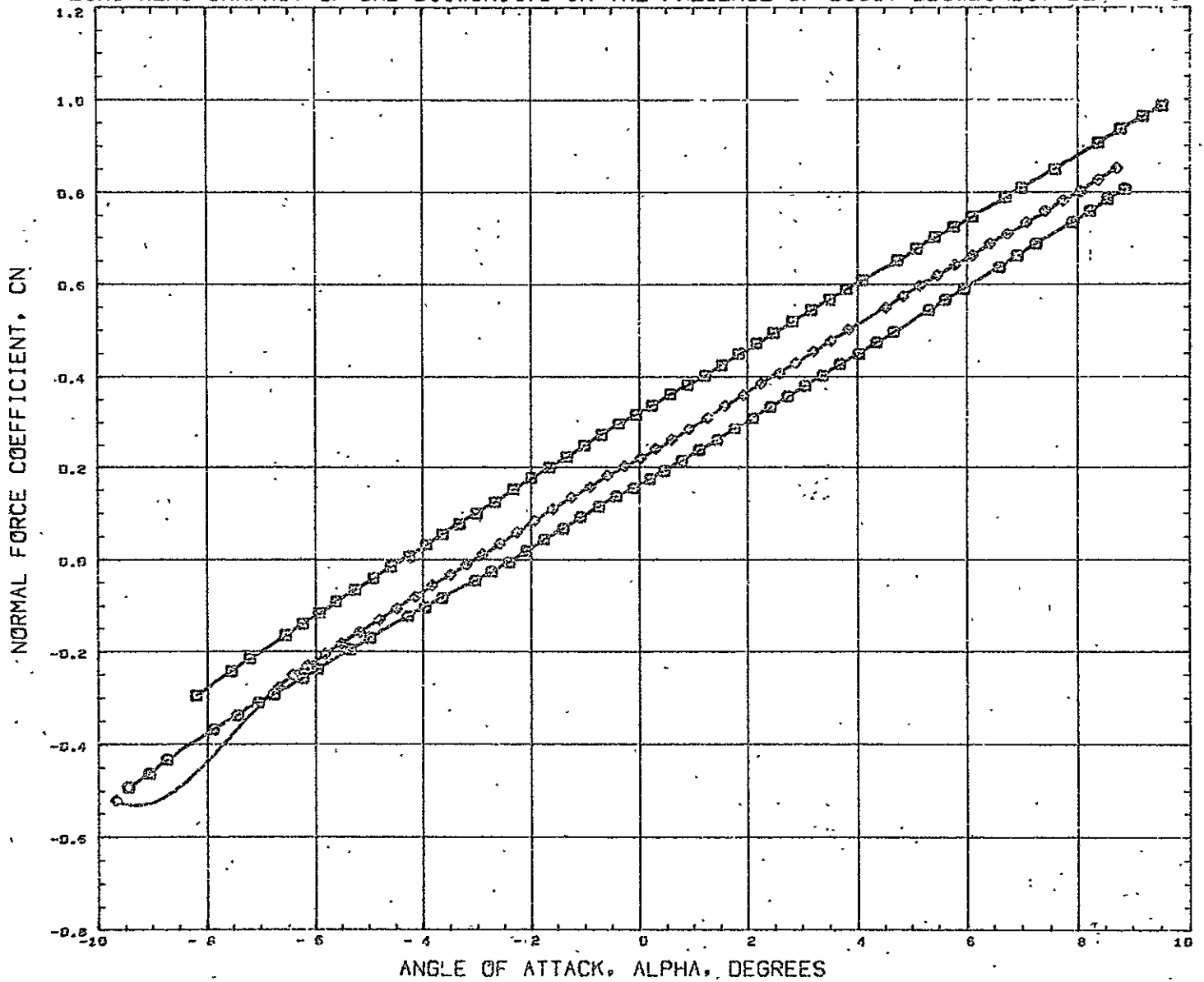


SYMBOL	SEFFOS	PARAMETRIC VALUES			
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□	5.000	ALPB	0.000	BETB	0.000
◇	6.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

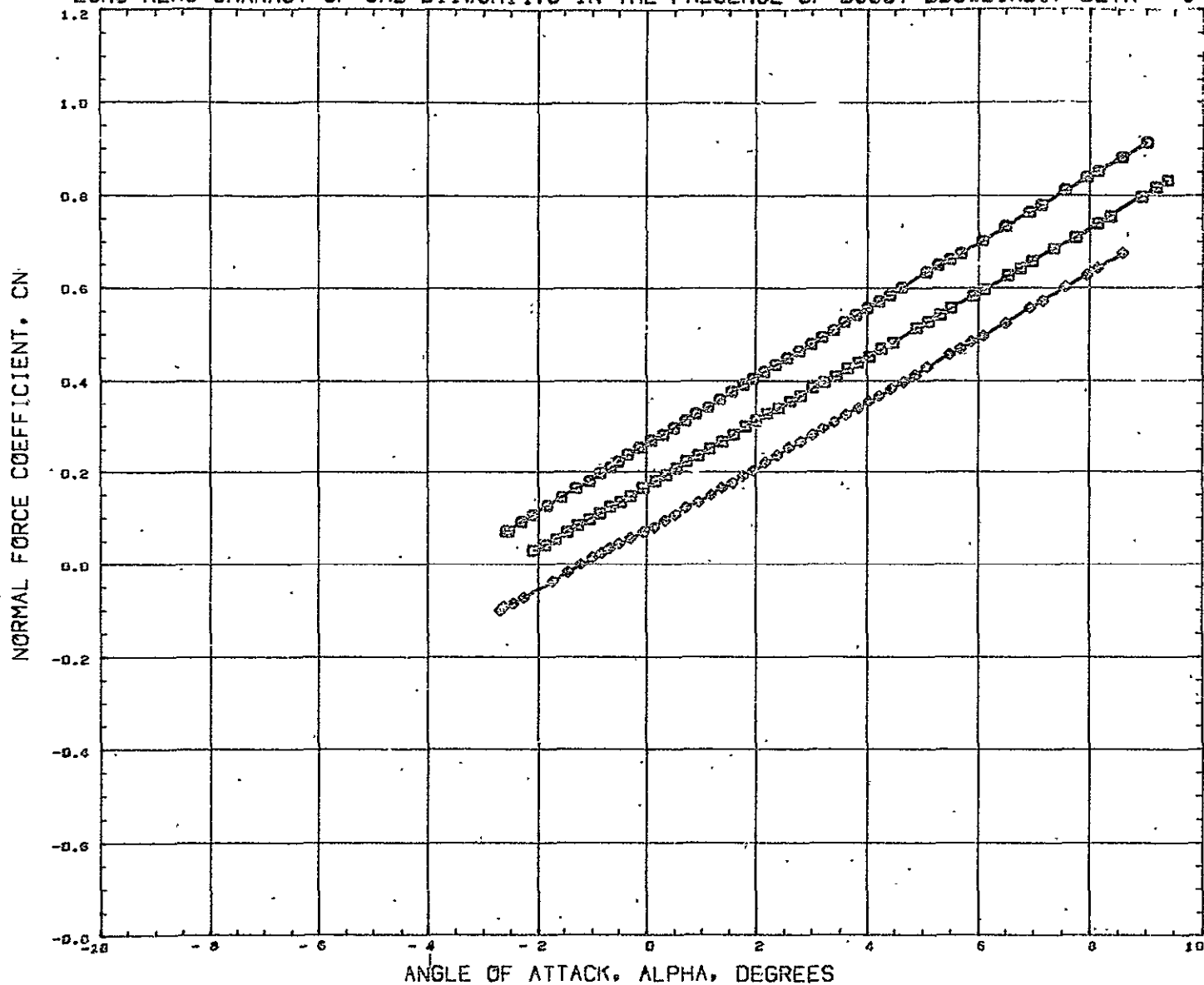
LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION			
◻	7.000	BETA	0.000	MACH	1.010	REFS	20.6640	53 IN	
◻	8.000	ALPB	0.000	BETB	0.000	REFL	1.8540	IN	
◻	9.000					REFB	12.0000	IN	
						XHRP	9.3880	IN	
						YHRP	0.0000	IN	
						ZHRP	1.4600	IN	
		REFERENCE FILE	.0000			SCALE	0.0088		

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEFPOS	BETA	PARAMETRIC VALUES		
○	10.000		0.000	MACH	1.810
□	11.000	ALFB	0.000	BETB	0.000
◇	12.000				

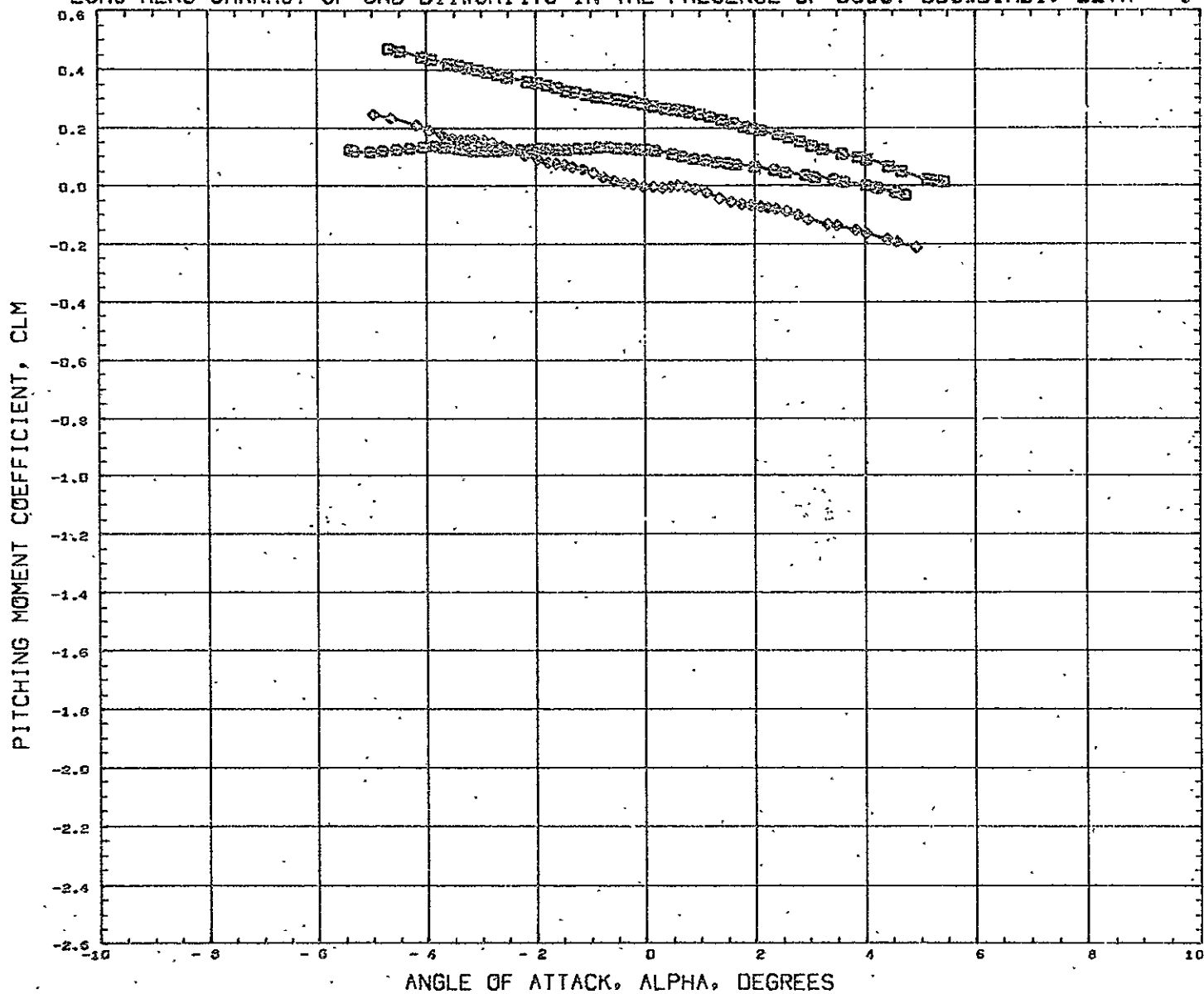
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REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

MSC S-28 ORBITER B11W6H14V5 NEAR BB3WB1HB1

(RCH001) 22 JAN 71 PAGE 8

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

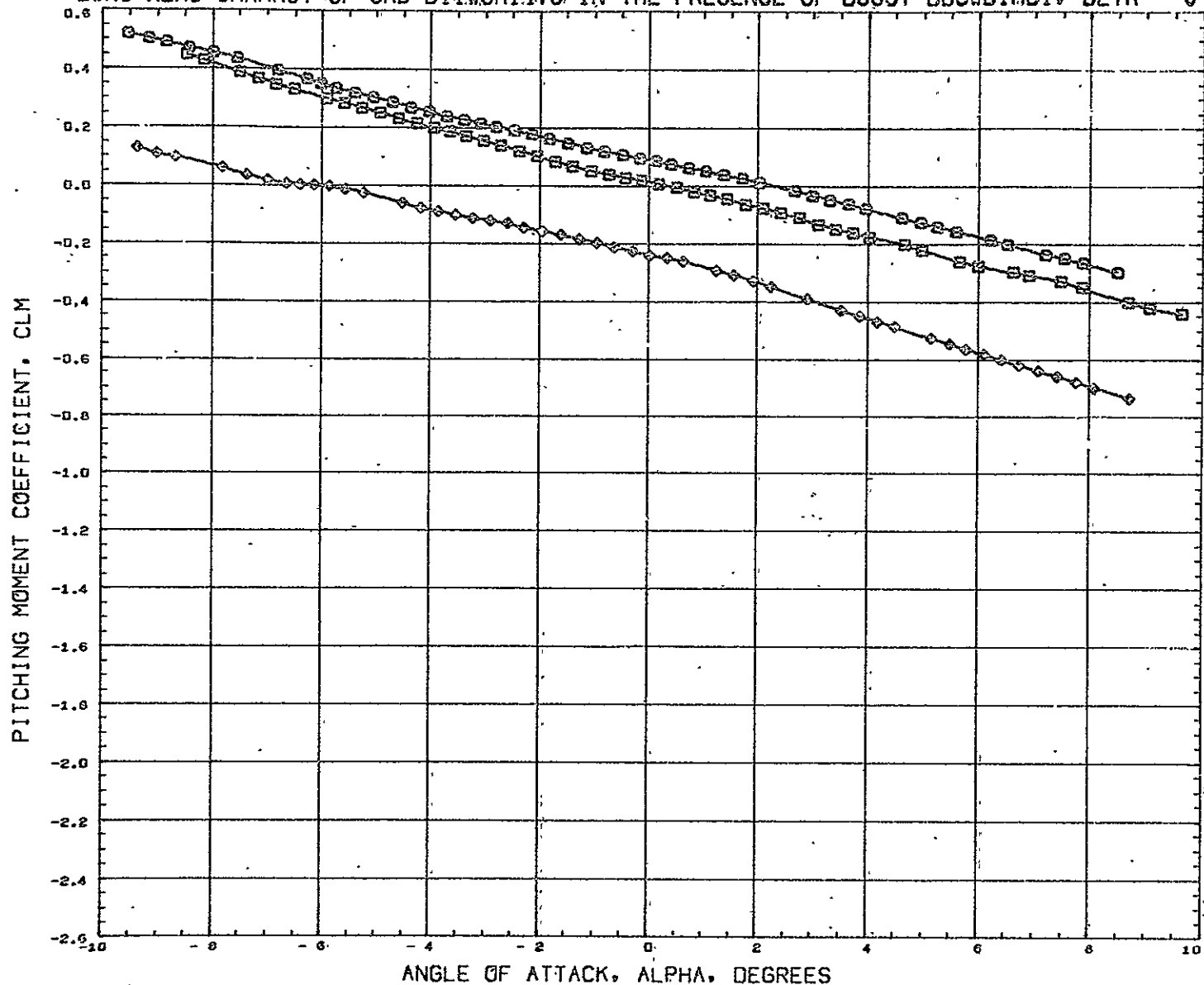


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○	1.000	BETA 0.000 MACH 1.810
□	2.000	ALPB 0.000 BETB 0.000
◇	3.000	

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

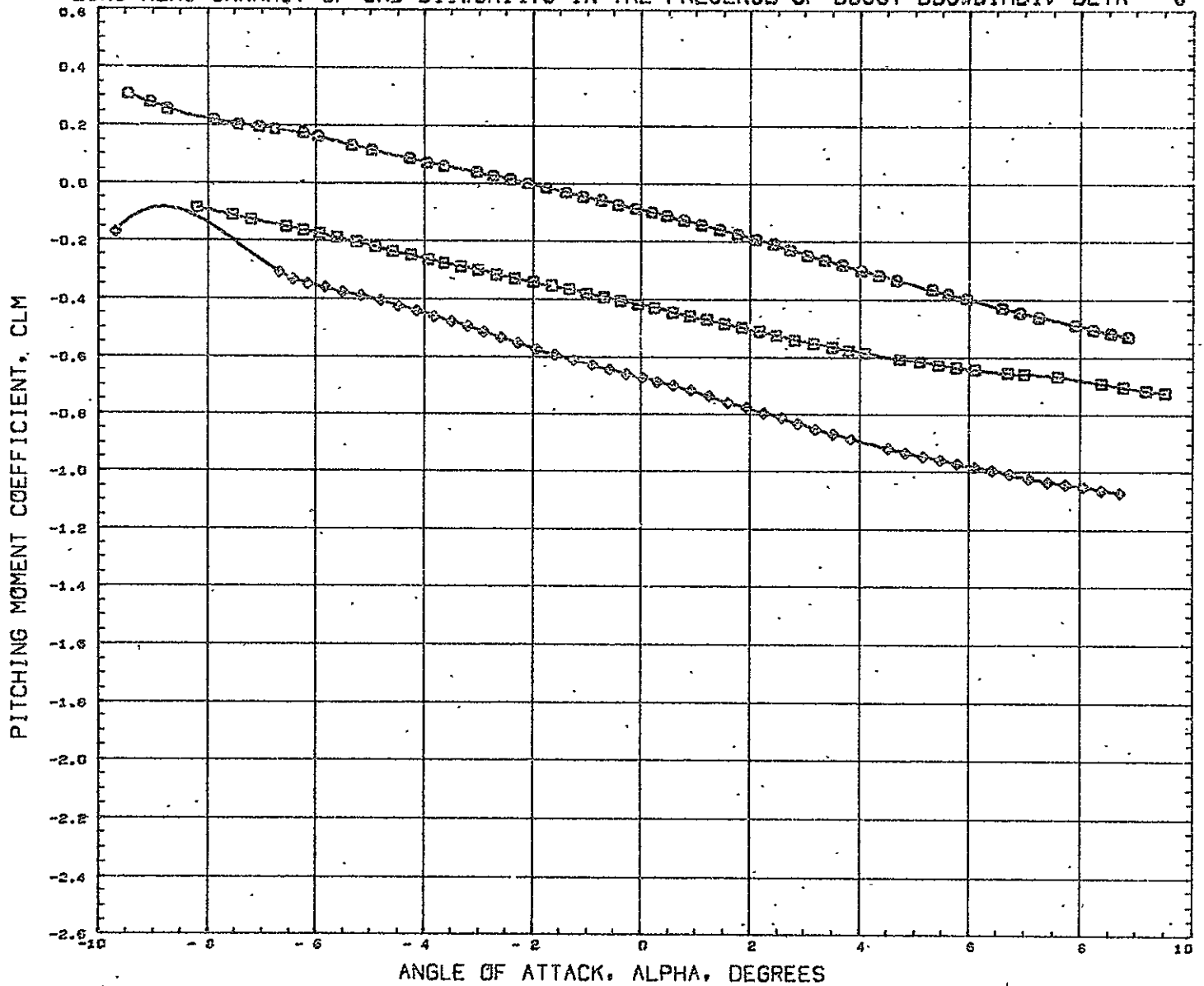


SYMBOL	SEFFOS	PARAMETRIC VALUES			
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□	5.000	ALPB	0.000	BETB	0.000
◇	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

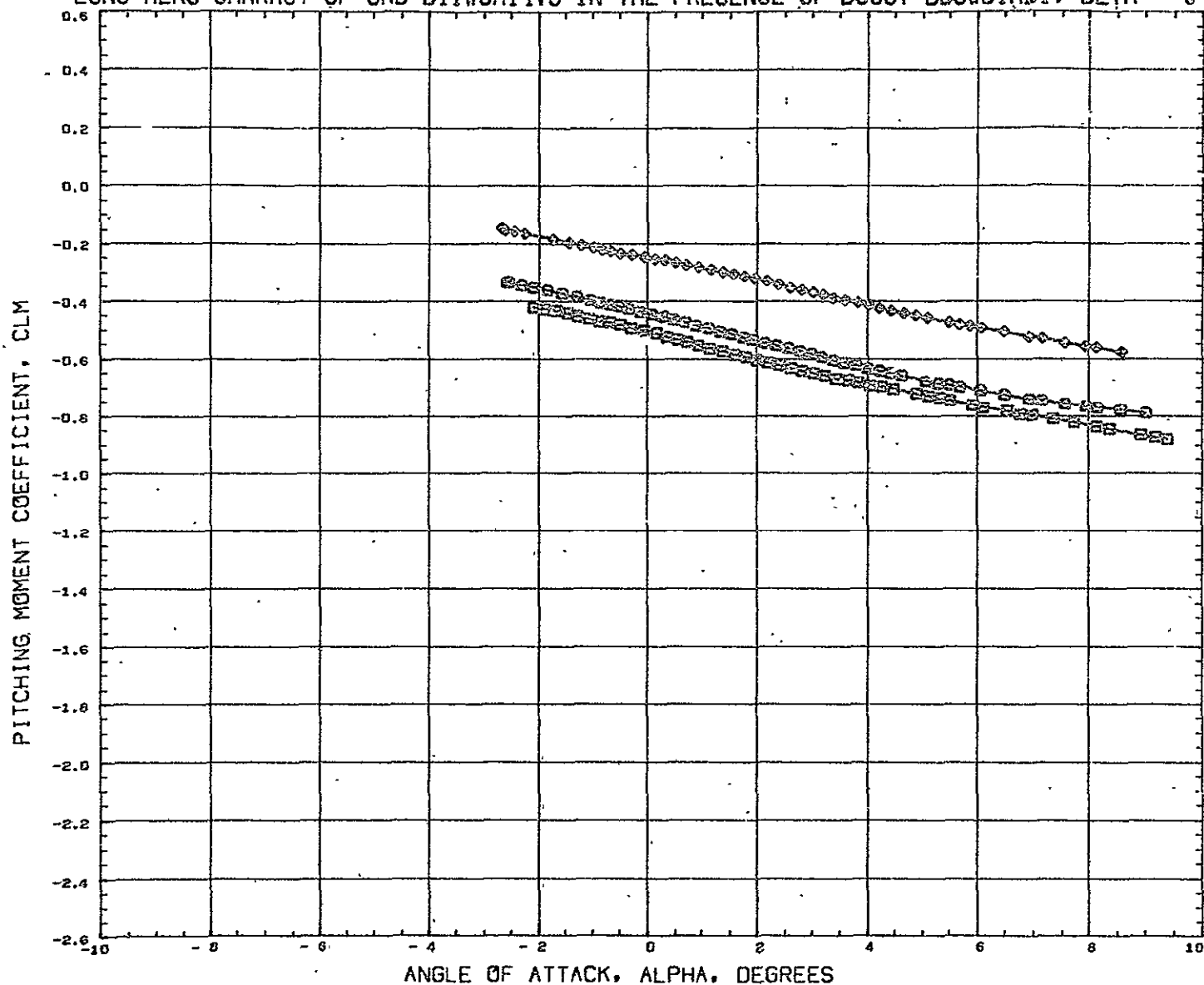


SYMBOL	SEFFOS	PARAMETRIC VALUES			
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□	8.000	ALPB	0.000	BETB	0.000
◇	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

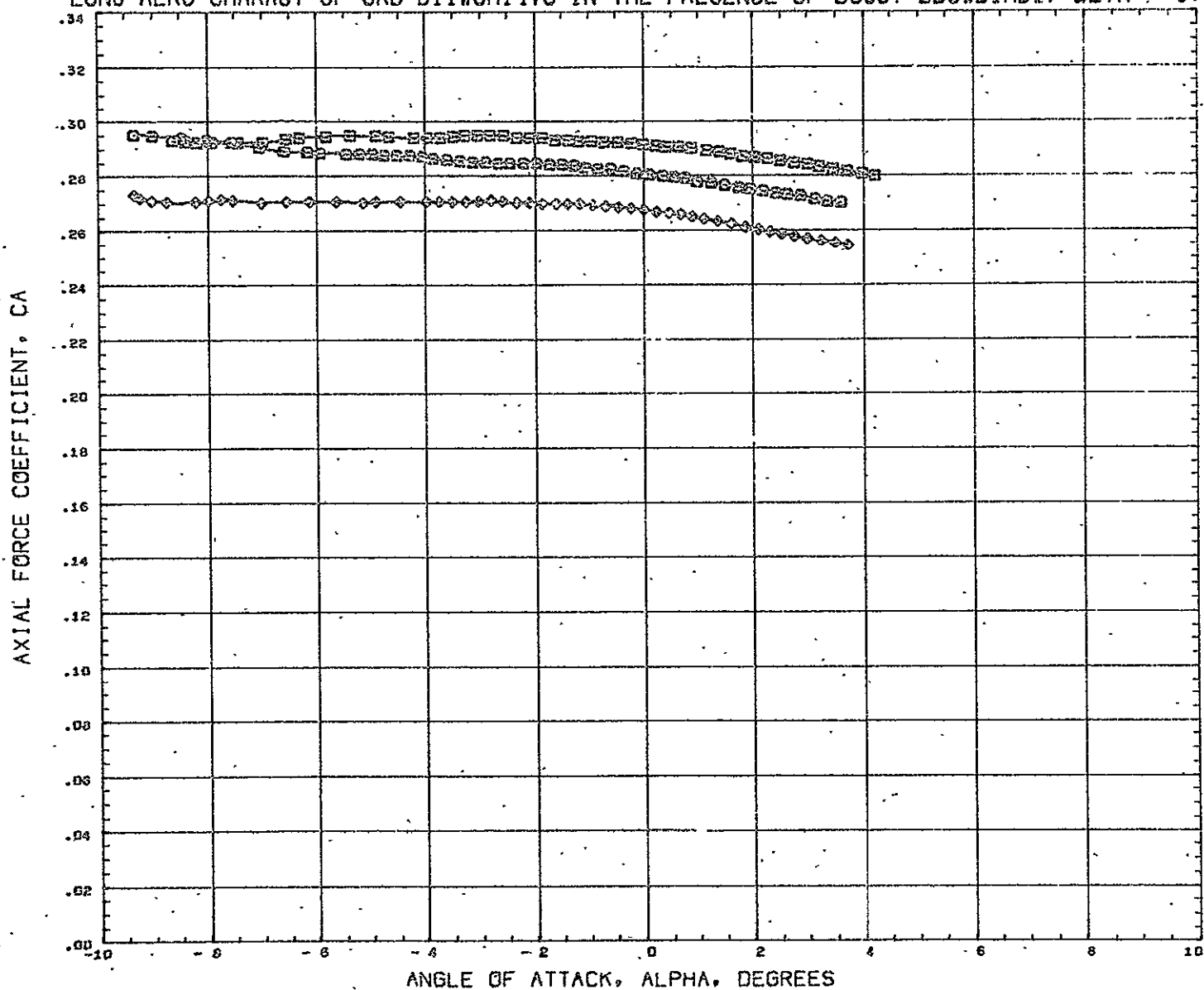


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◇	11,000	ALPB	0.000	BETB	0.000
○	12,000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

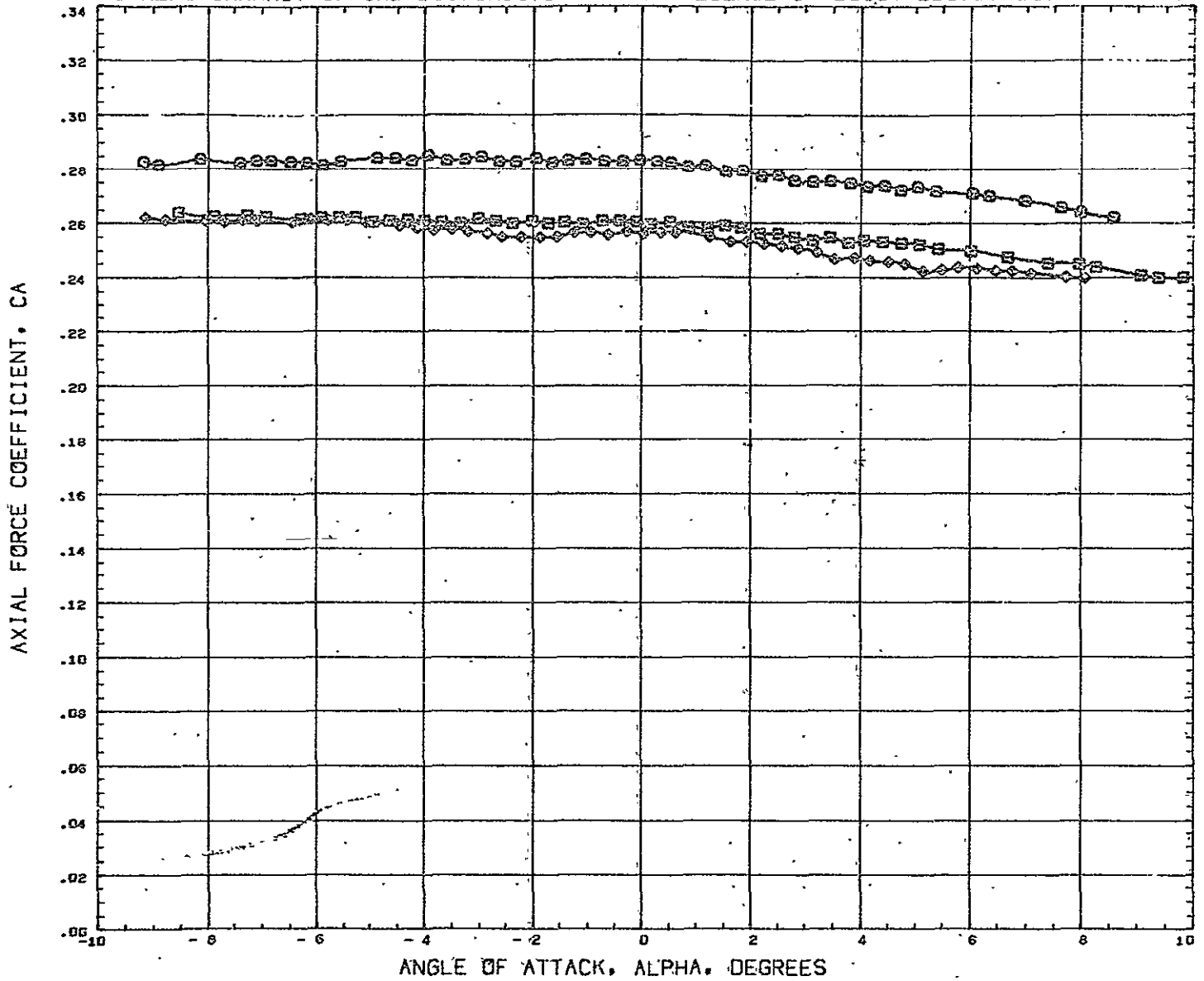


SYMBOL	SEPP05	PARAMETRIC VALUES			
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◇	5.000	ALPB	- 5.000	BETB	0.000
○	6.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

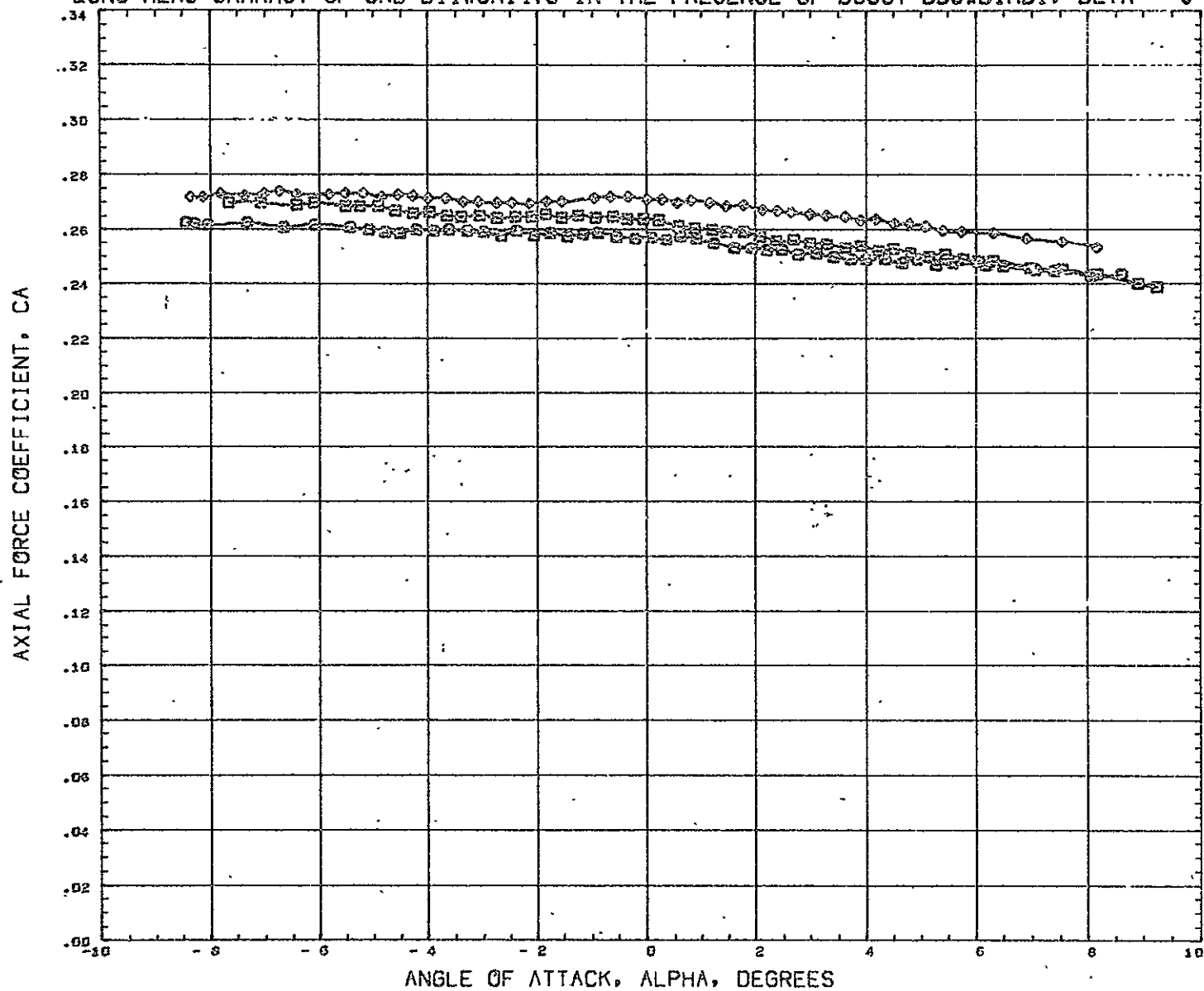


SYMBOL	SEPP05	PARAMETRIC VALUES			
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□	8.000	ALPB	- 5.000	BETB	0.000
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REPL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

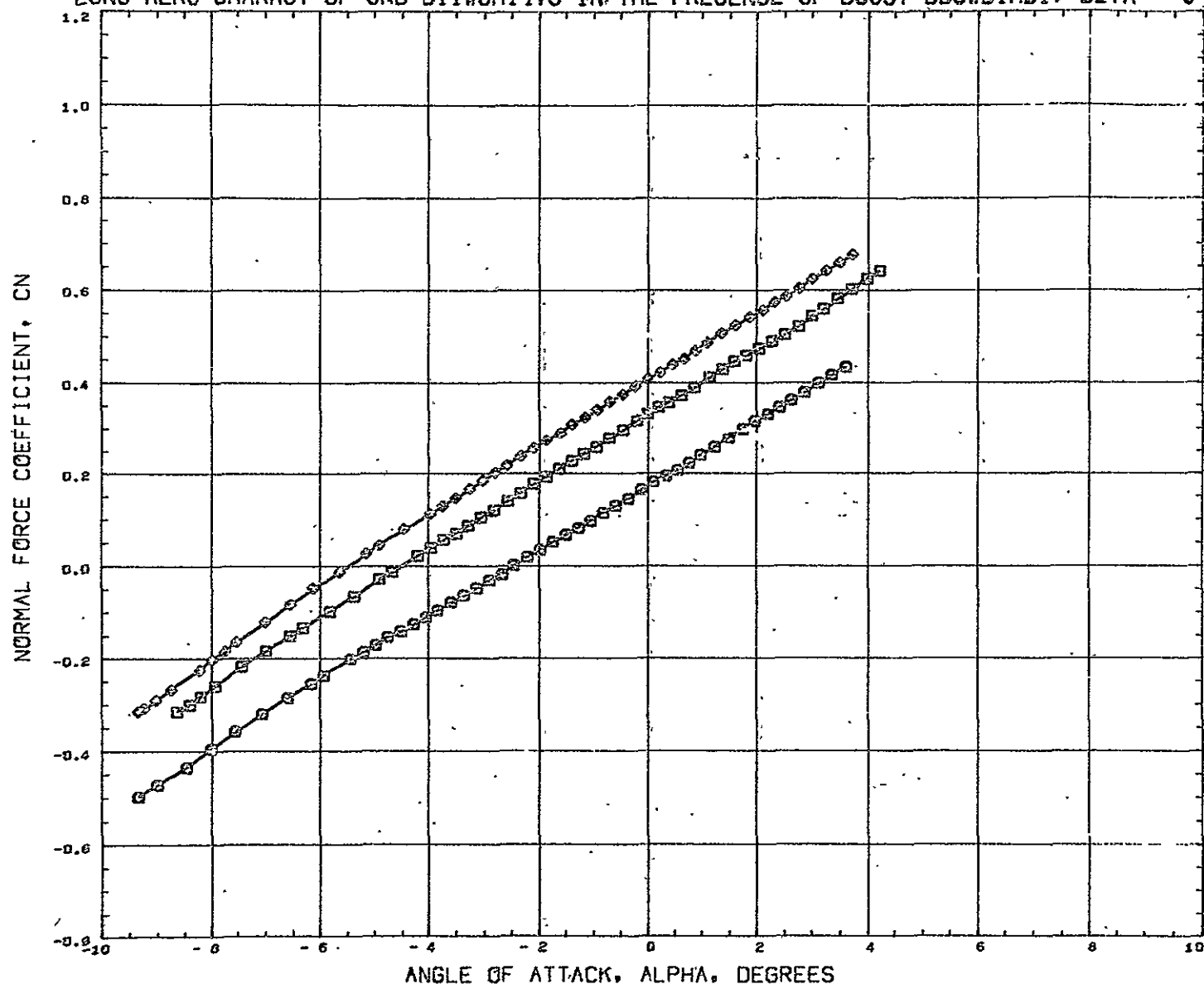


SYMBOL	SEFPOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	MACH	1.810
□	11.000	ALPB	- 5.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRF	9.3880	IN
YHRF	0.0000	IN
ZHRF	1.4600	IN
SCALE	0.0008	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

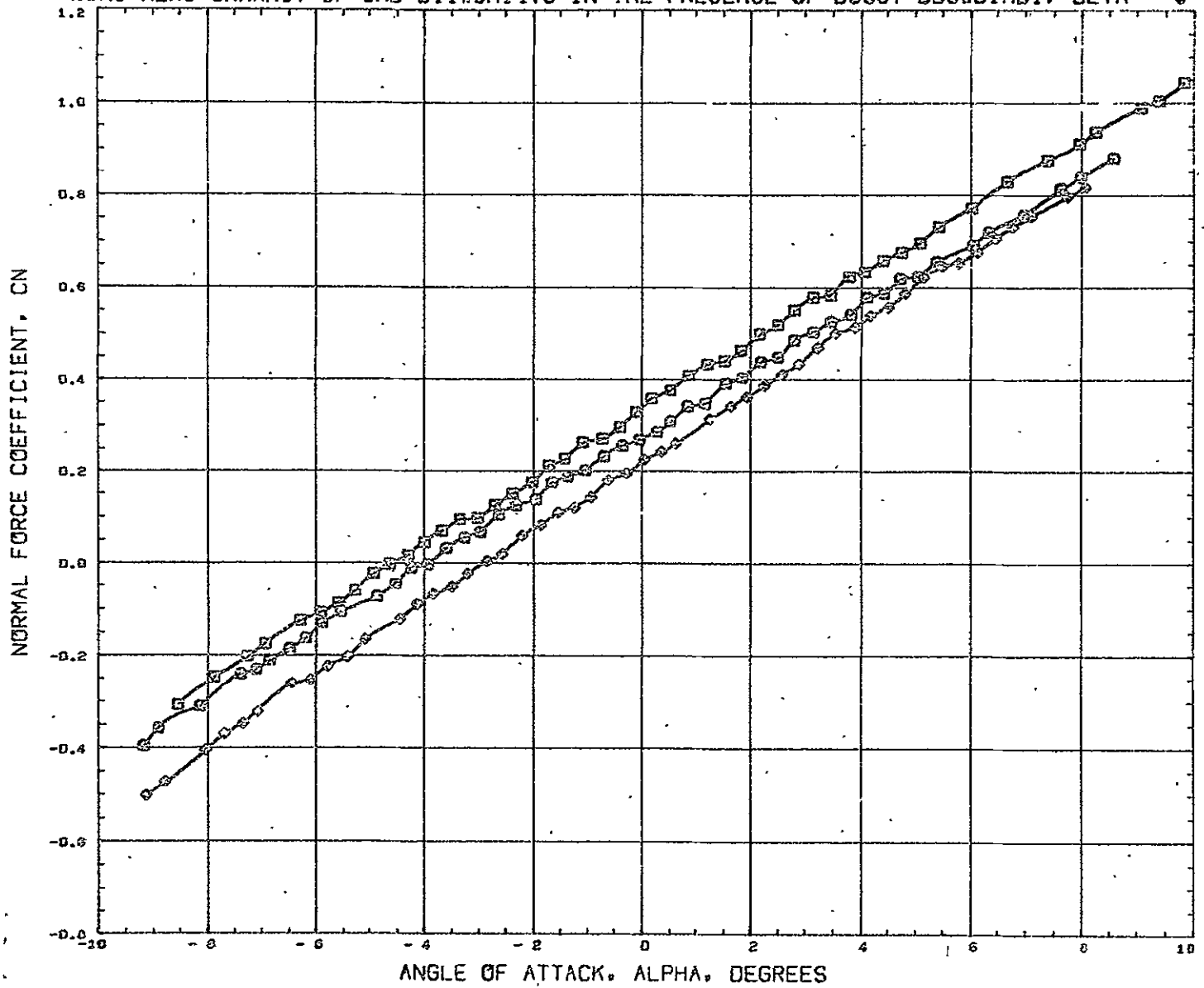


SYMBOL	SEFFOS	PARAMETRIC VALUES			
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□	5.000	ALPB	- 5.000	BETB	0.000
◇	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

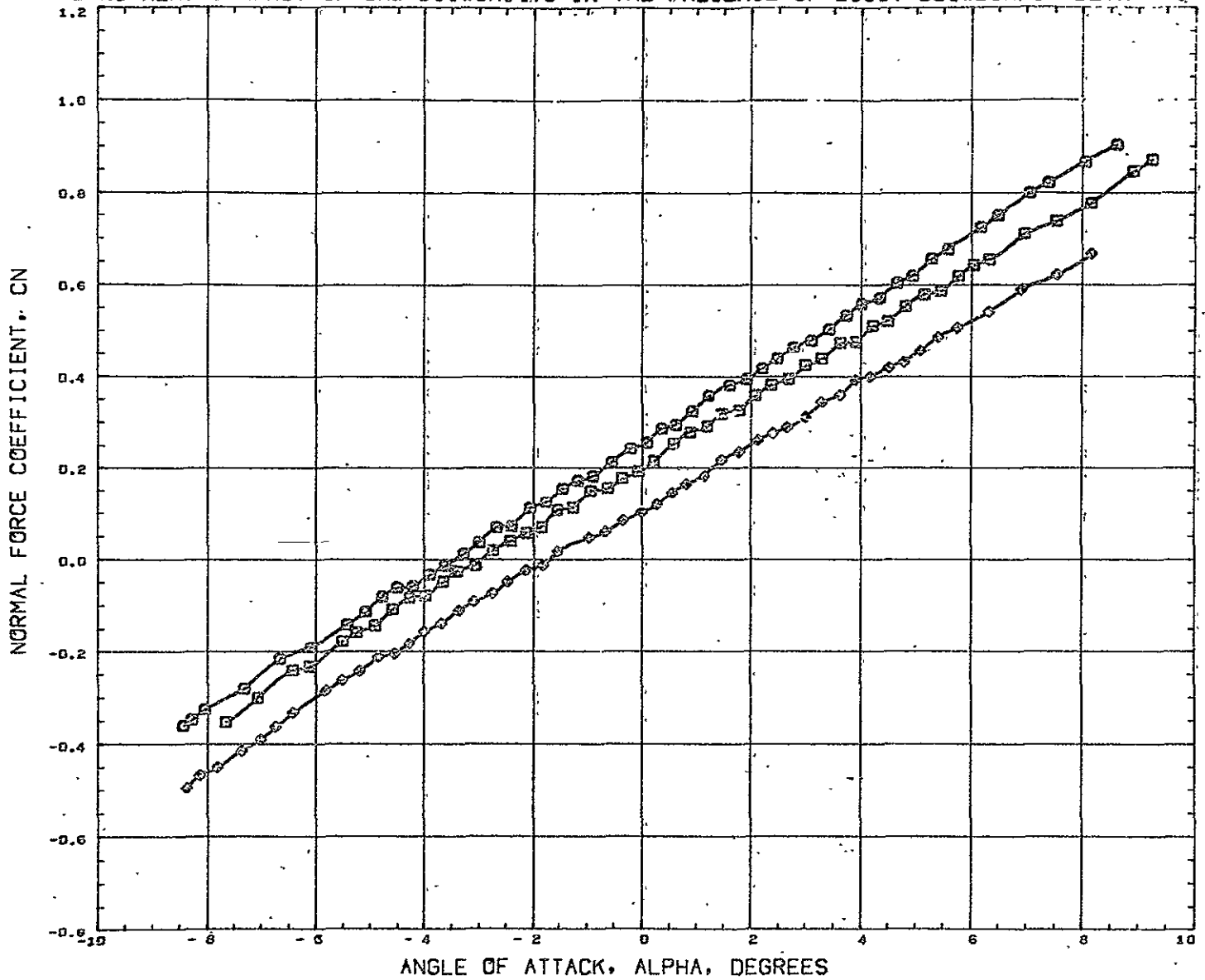


SYMBOL	SEPPOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	MACH	1.610
◇	8.000	ALPB	- 5.000	BETB	0.000
○	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SO IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

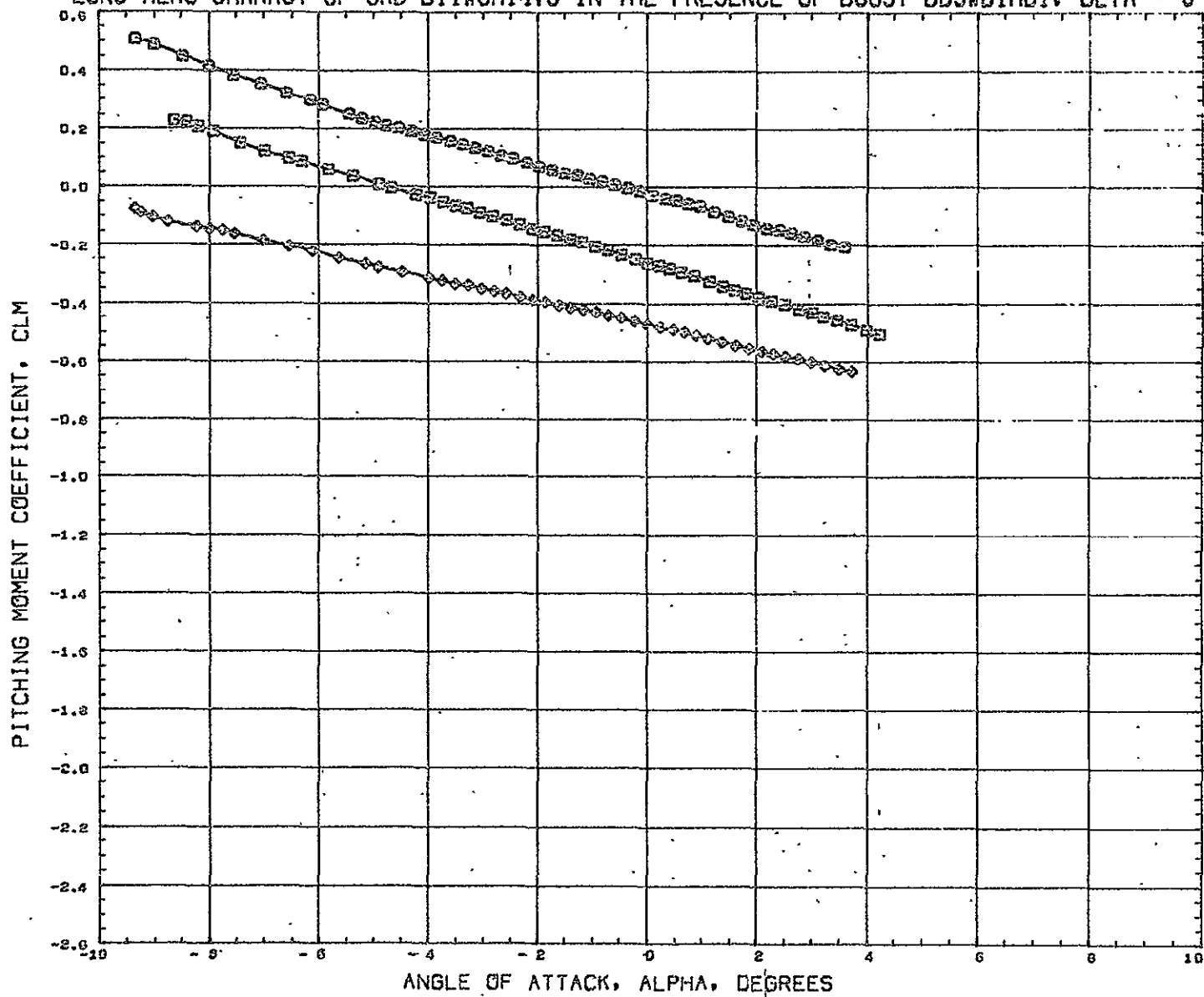


SYMBOL	SEFPOS	PARAMETRIC VALUES
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□	11.000	ALPB - 5.000 BETB 0.000
◇	12.000	

REFERENCE FILE .0000

REFERENCE INFORMATION		
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REFL	1.8540	IN
REFB	12.0000	IN
XNRF	9.3880	IN
YNRF	0.0000	IN
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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

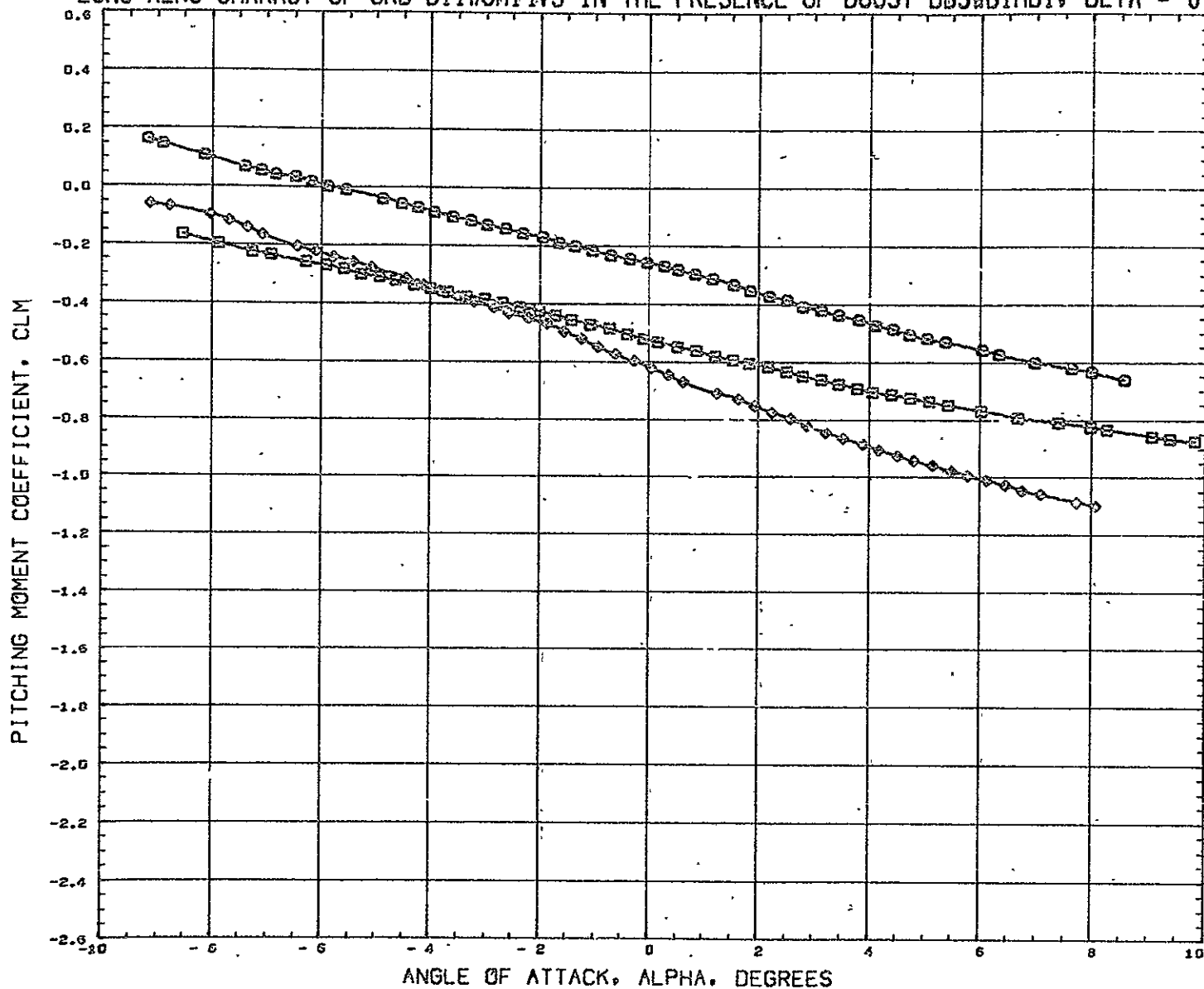


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○	6.000				

REFERENCE INFORMATION		
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REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3890	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1; BETA = 0

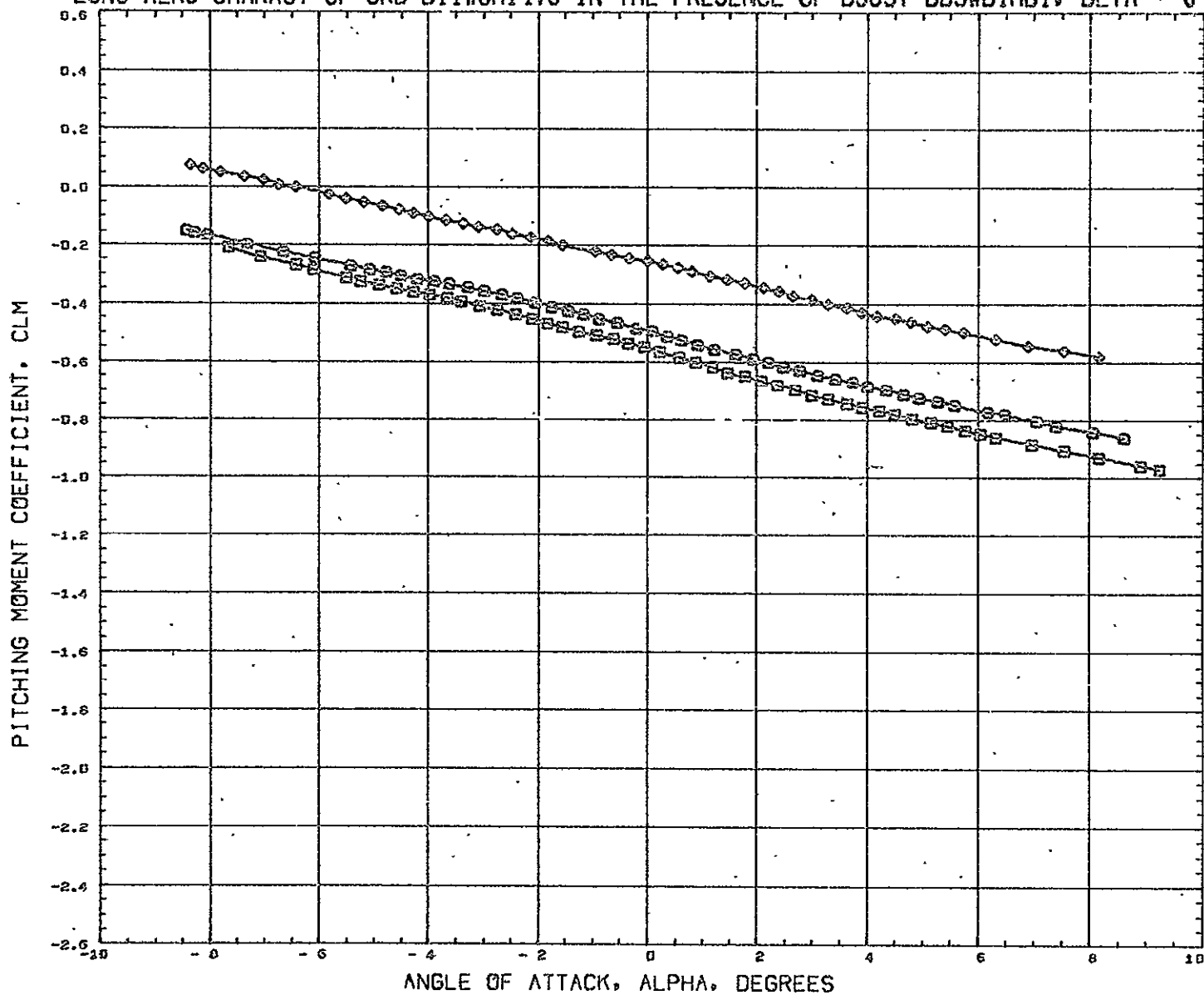


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□	8.000	ALPB	5.000	BETB	0.000
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRF	9.3880	IN
YHRF	0.0000	IN
ZHRF	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



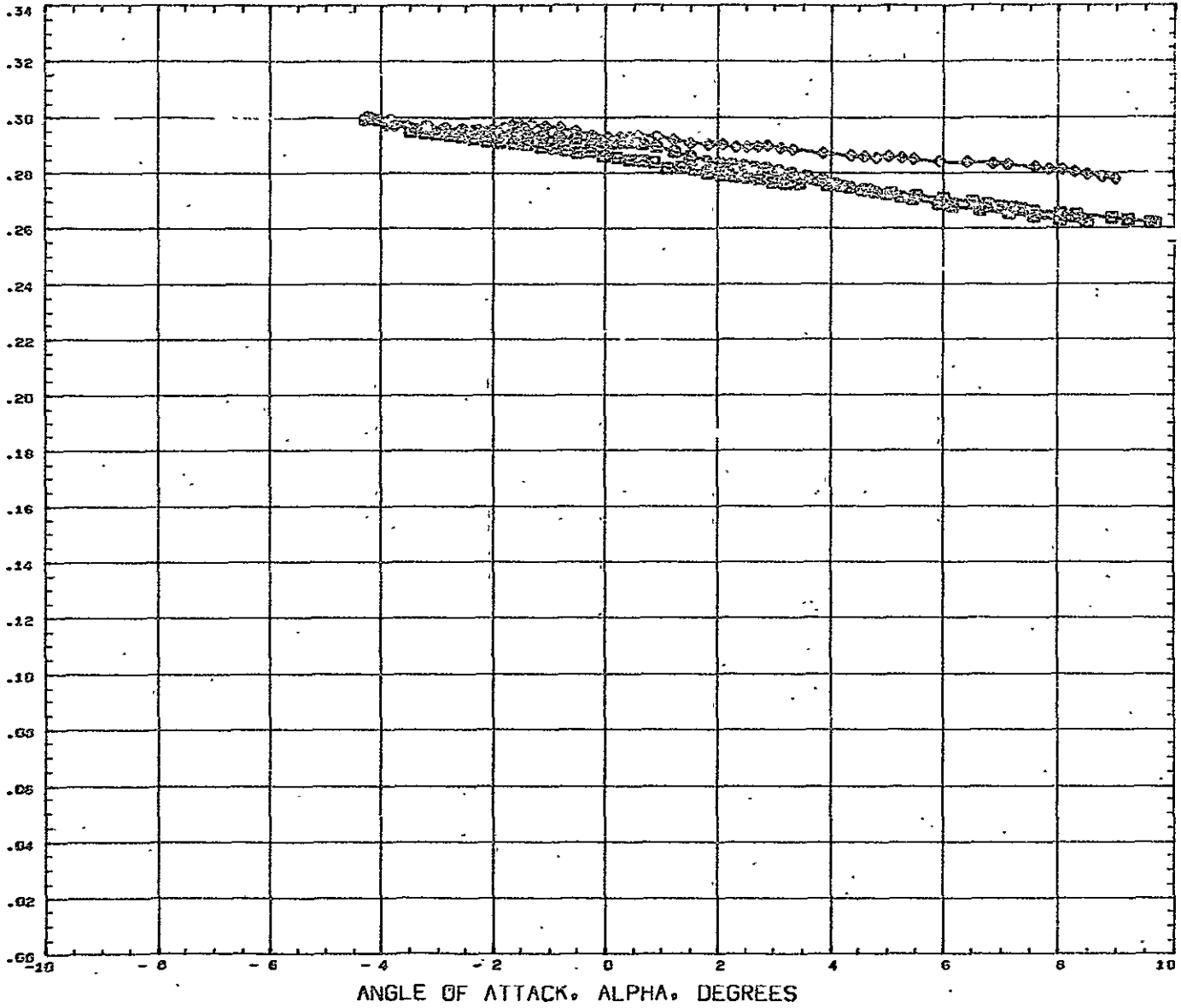
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□	11.000	ALFB	- 5.000	BETB	0.000
○	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

AXIAL FORCE COEFFICIENT, CA



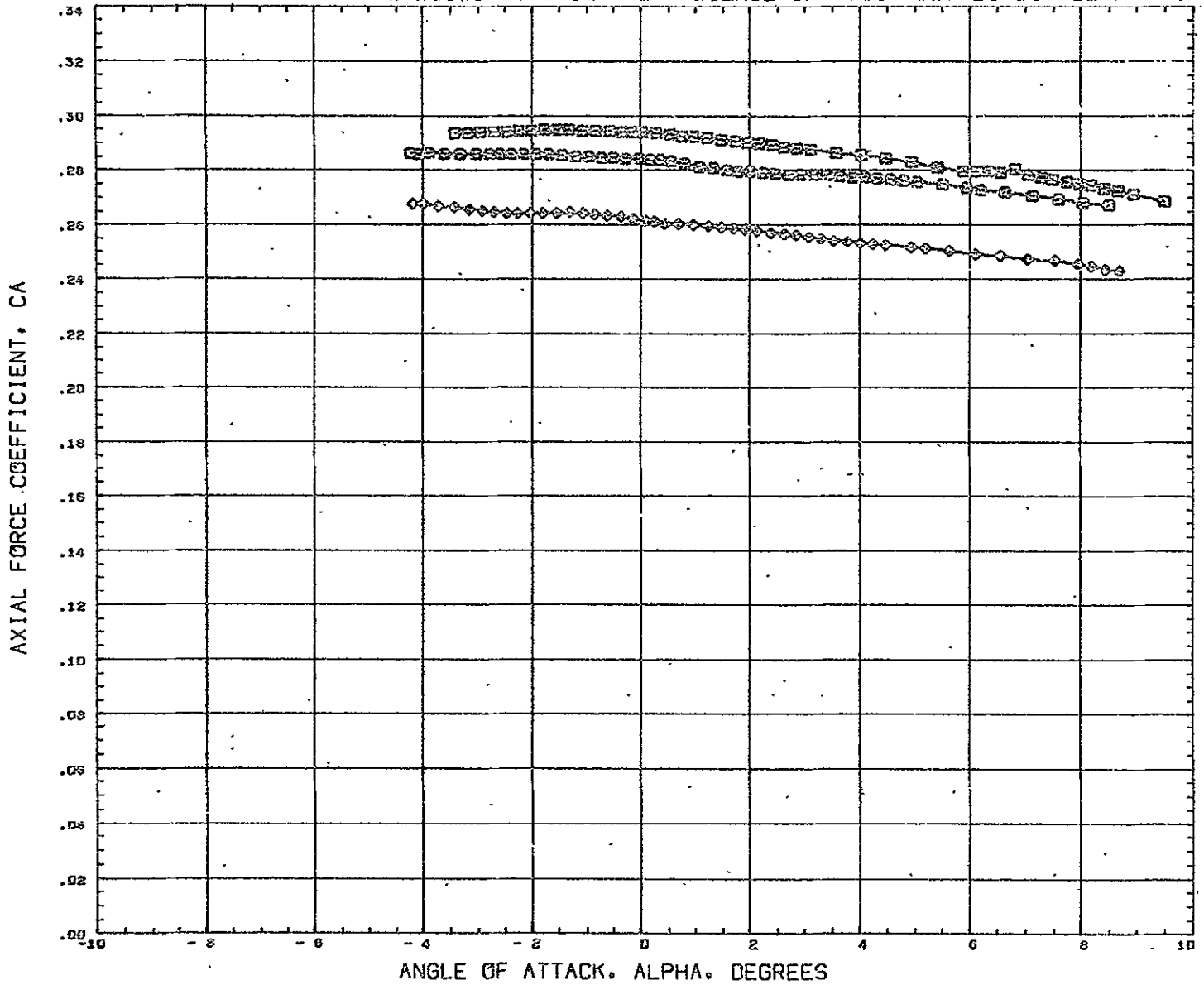
SYMBOL SEFFOS
 ○ 4.000
 □ 5.000
 ◇ 6.000

PARAMETRIC VALUES
 BETA 0.000 MACH 1.810
 ALFB 5.000 BETB 0.000

REFERENCE INFORMATION
 REFS 20.6640 SQ IN
 REFL 1.8540 IN
 REFB 12.0000 IN
 XMRP 9.3880 IN
 YMRP 0.0000 IN
 ZMRP 1.4600 IN
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REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

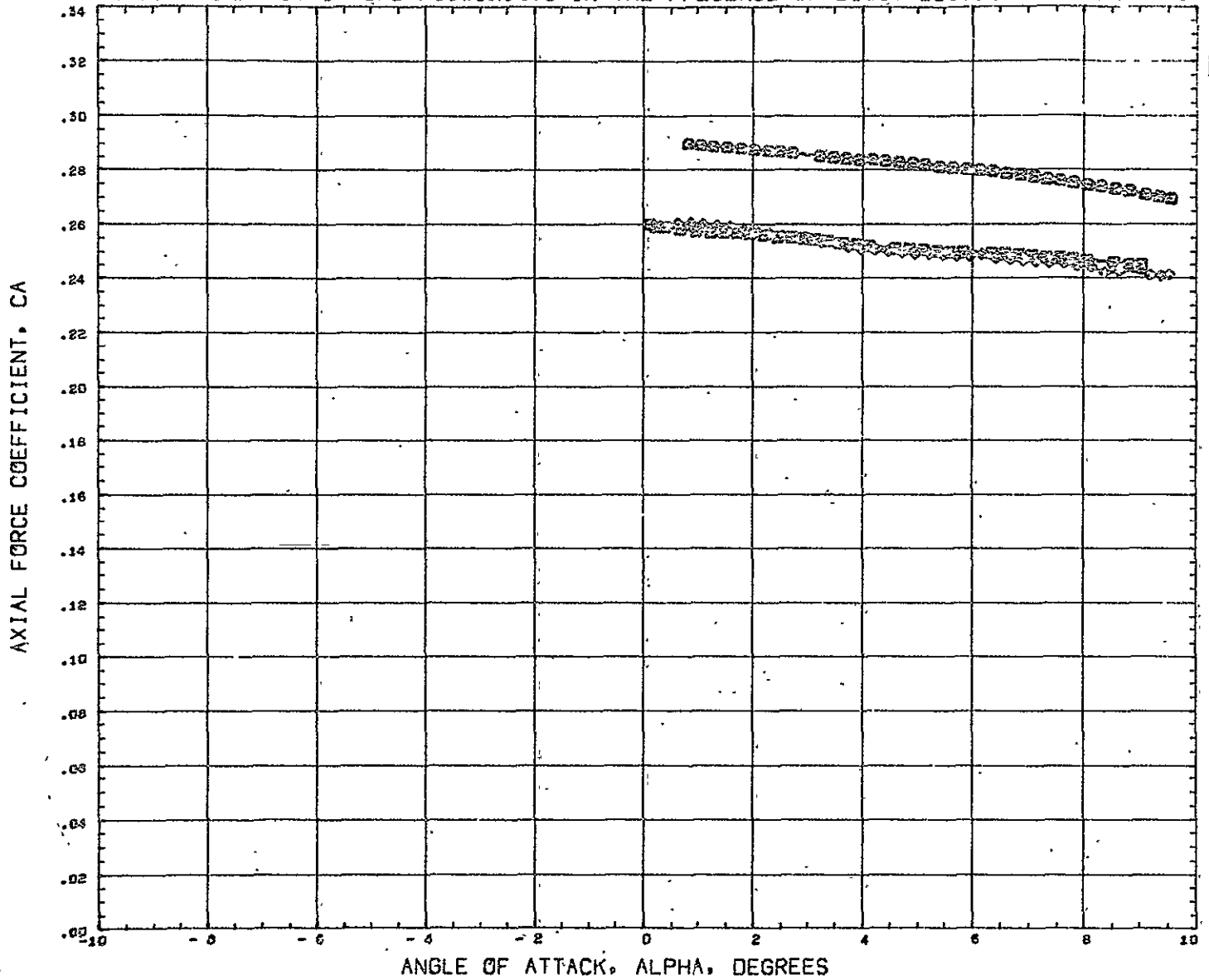


SYMBOL	SEFPOS	PARAMETRIC VALUES			
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◻	8.000	ALFB	5.000	BETB	0.000
◇	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0



SYMBOL	SEPPS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	MACH	1.810
□	11.000	ALPB	5.000	BETB	0.000
◇	12.000				

REFERENCE FILE .0000

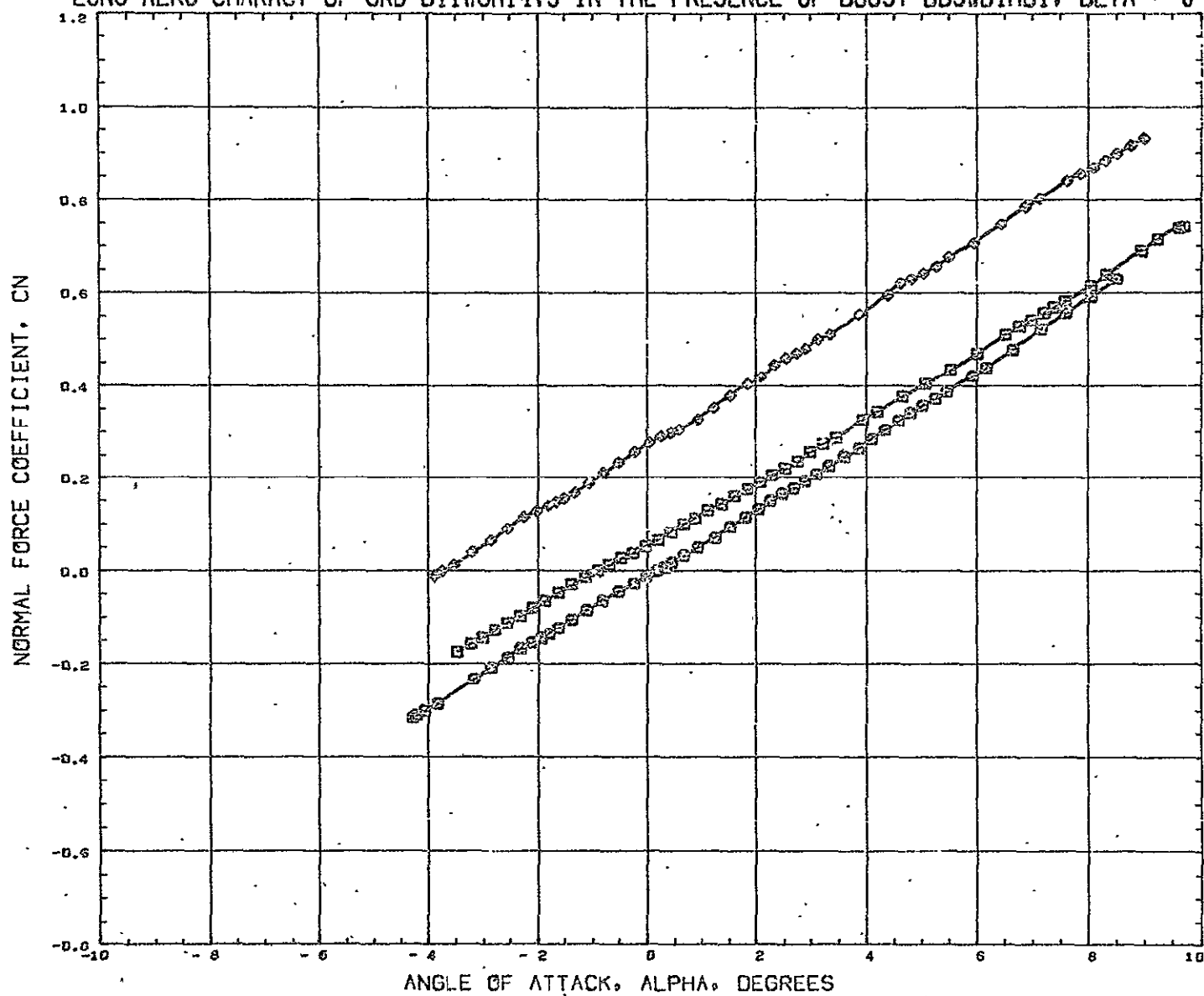
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YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	0.0098	

MSC S-28 ORBITER B11W6H14V5 NEAR BB3WB1HB1

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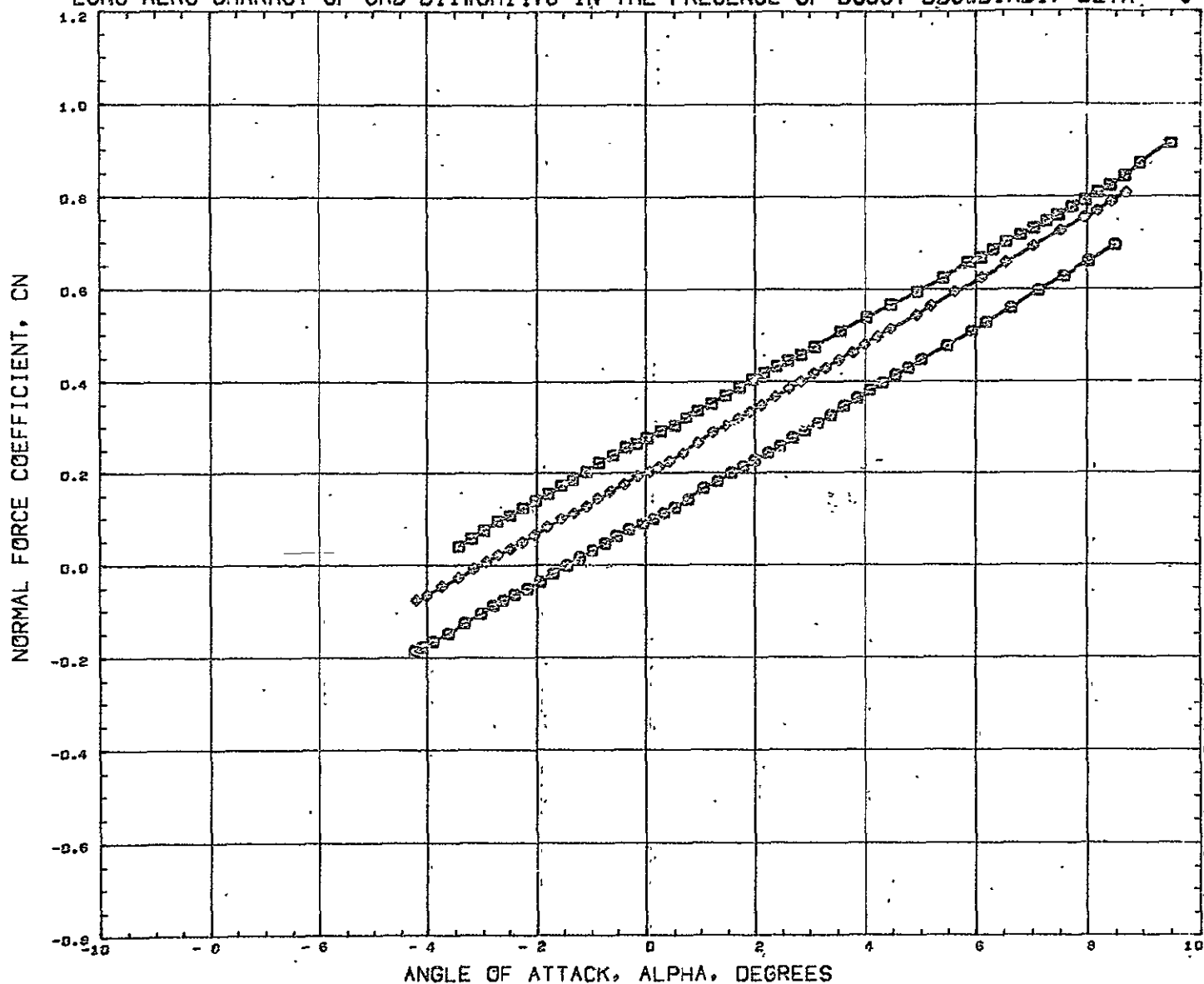
LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



PARAMETRIC VALUES						REFERENCE INFORMATION		
SYMBOL	SEFFOS	BETA	MACH	ALPB	BETB	REFS	20.6640	SQ IN
□	4.000	0.000	1.810	5.000	0.000	REFL	1.8540	IN
◇	5.000	0.000	1.810	5.000	0.000	REFB	12.0000	IN
○	6.000	0.000	1.810	5.000	0.000	XMRP	9.3880	IN
						YMRP	0.0000	IN
						ZHRP	1.4600	IN
						SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

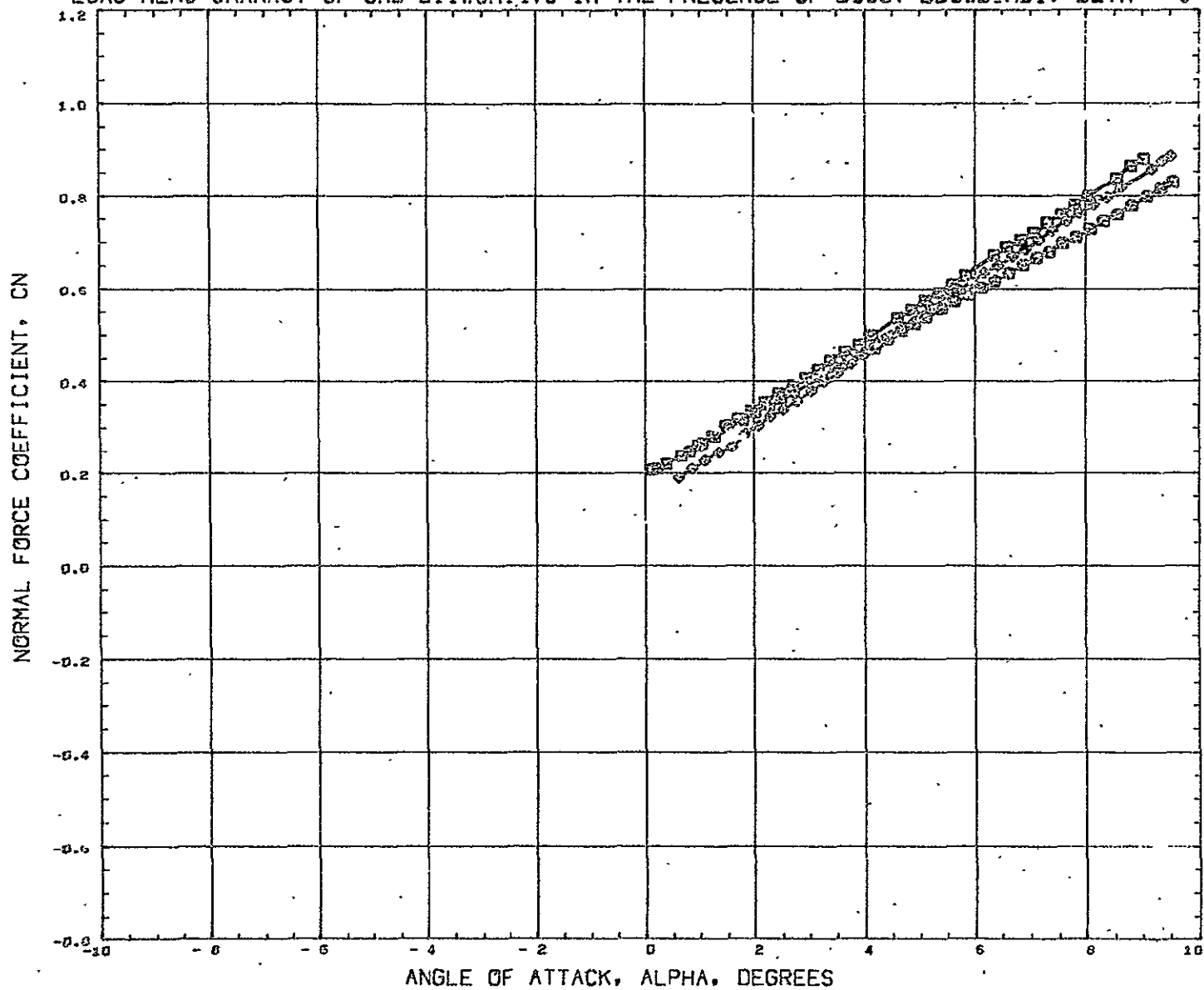


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	7.000	BETA	0.000	MACH	1.810
□	8.000	ALFB	5.000	BETB	0.000
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

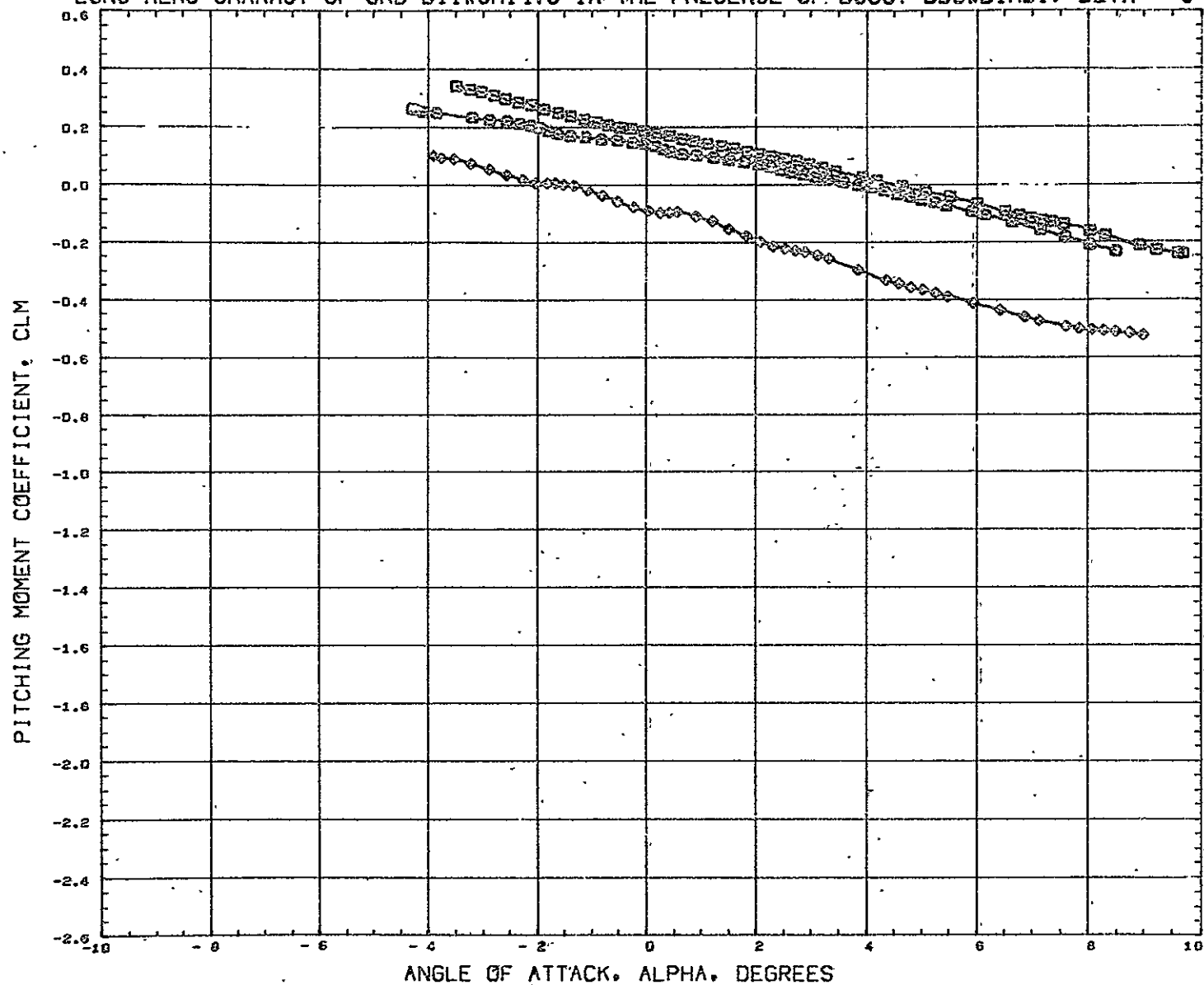


SYMBOL	SEFFOS	PARAMETRIC VALUES
□	10.000	BETA 0.000 MACH 1.810
◇	11.000	ALFB 5.000 BETB 0.000
○	12.000	

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

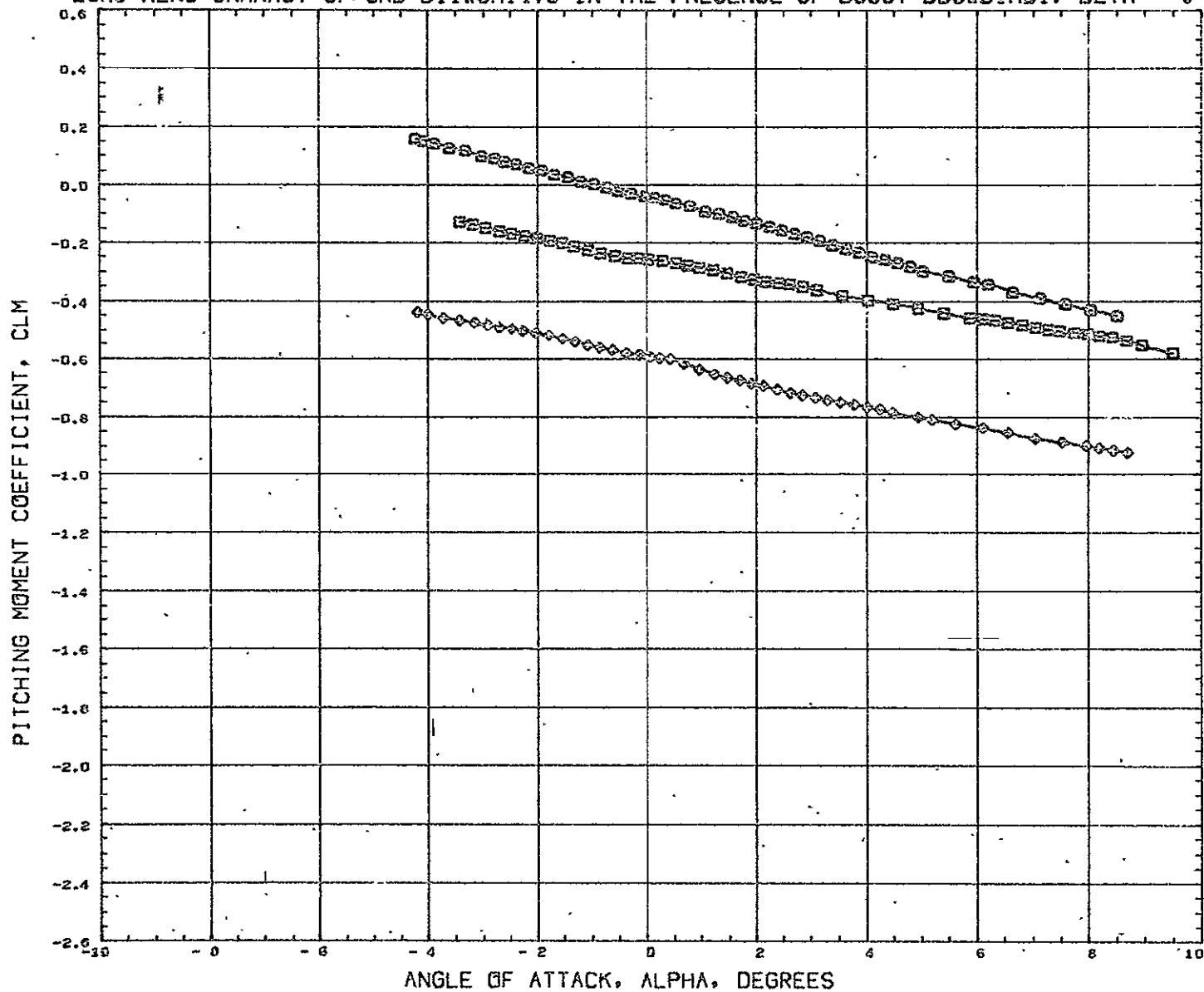


SYMBOL	SEFFOS	BETA	ALPB	PARAMETRIC VALUES	MACH	BETB
□	4.000	0.000	5.000	1.810	0.000	
◇	5.000					
○	6.000					

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



PARAMETRIC VALUES

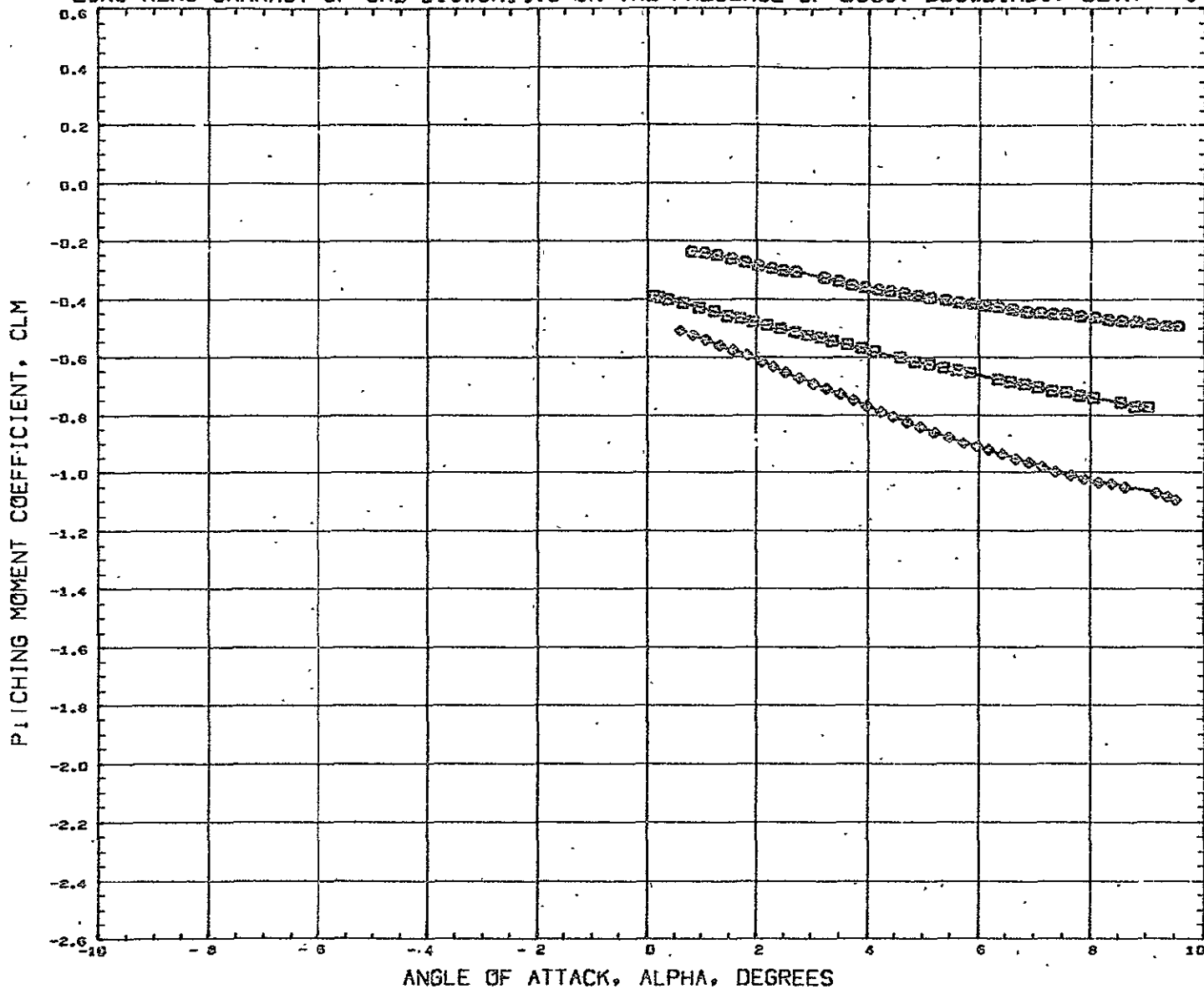
SEFFOS	BETA	MACH	ALPB	BETB
7.000	0.000	1.810	5.000	0.000
8.000				
9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION

REFS	REFL	REFB	XMRP	YNRP	ZMRP	SCALE
20.6640	1.8540	12.0000	9.3880	0.0000	1.4500	0.0088

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

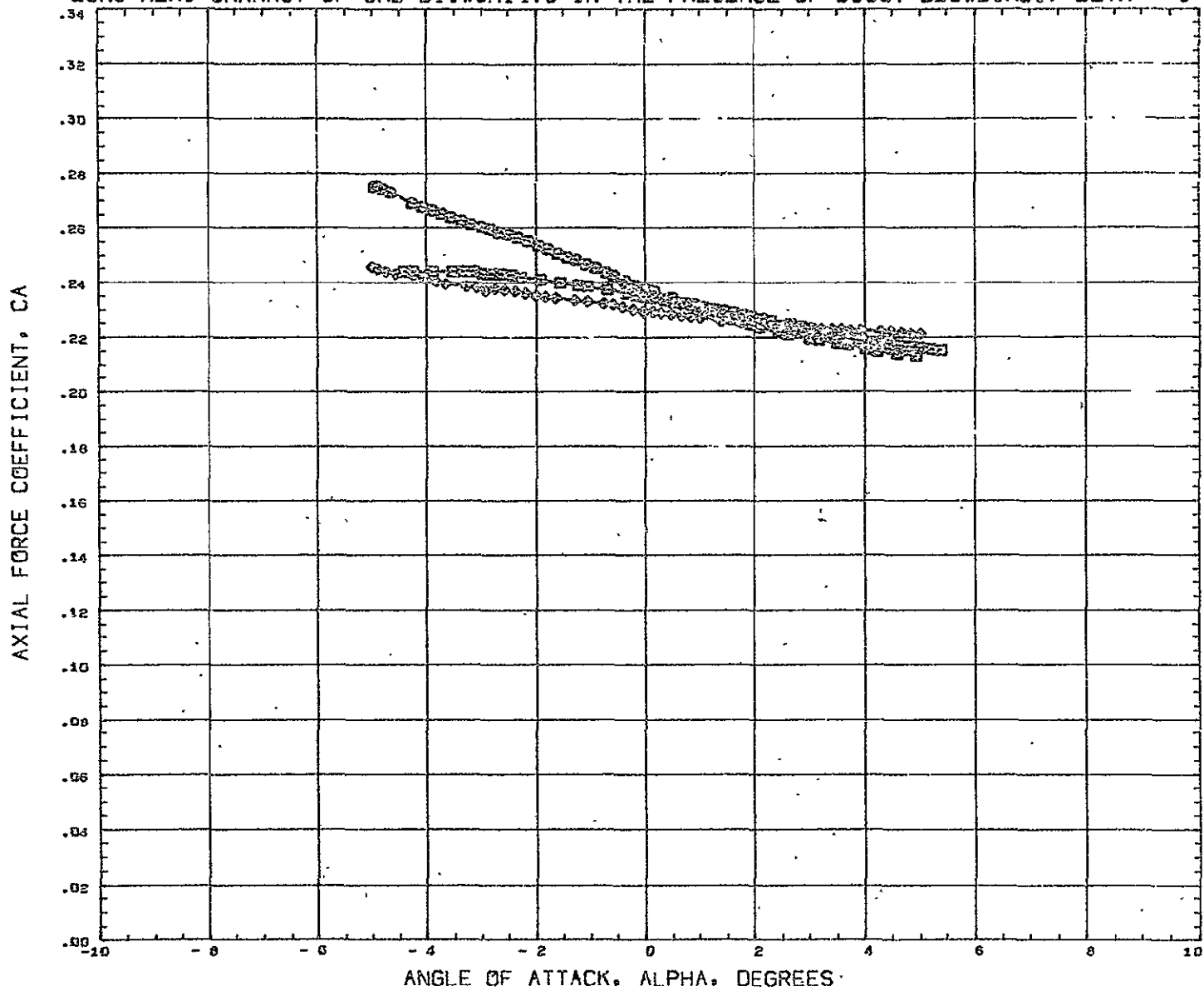


YNBOL	SEFFOS	BETA	PARAMETRIC VALUES	MACH	BETB
○	10.000	0.000		1.810	
□	11.000	ALPB	5.000		0.000
◇	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRF	9.3880	IN
YNRF	0.0000	IN
ZNRF	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES
○	1.000	BETA 0.000 MACH 2.990
□	2.000	ALFB 0.000 BETB 0.000
◇	3.000	

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XIRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

MSC S-28 ORBITER B11W6H14V5 NEAR BB3WB1HB1

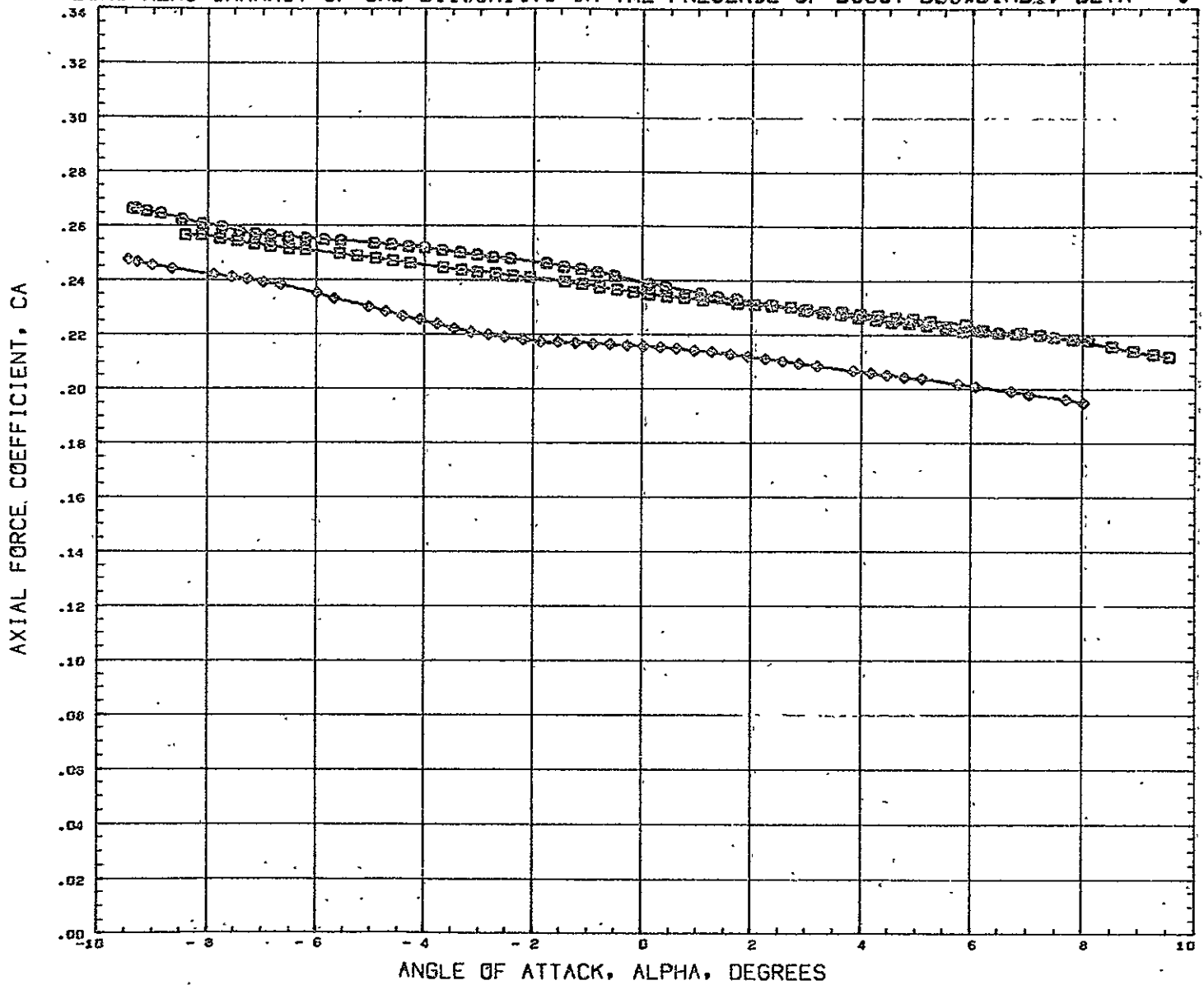
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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

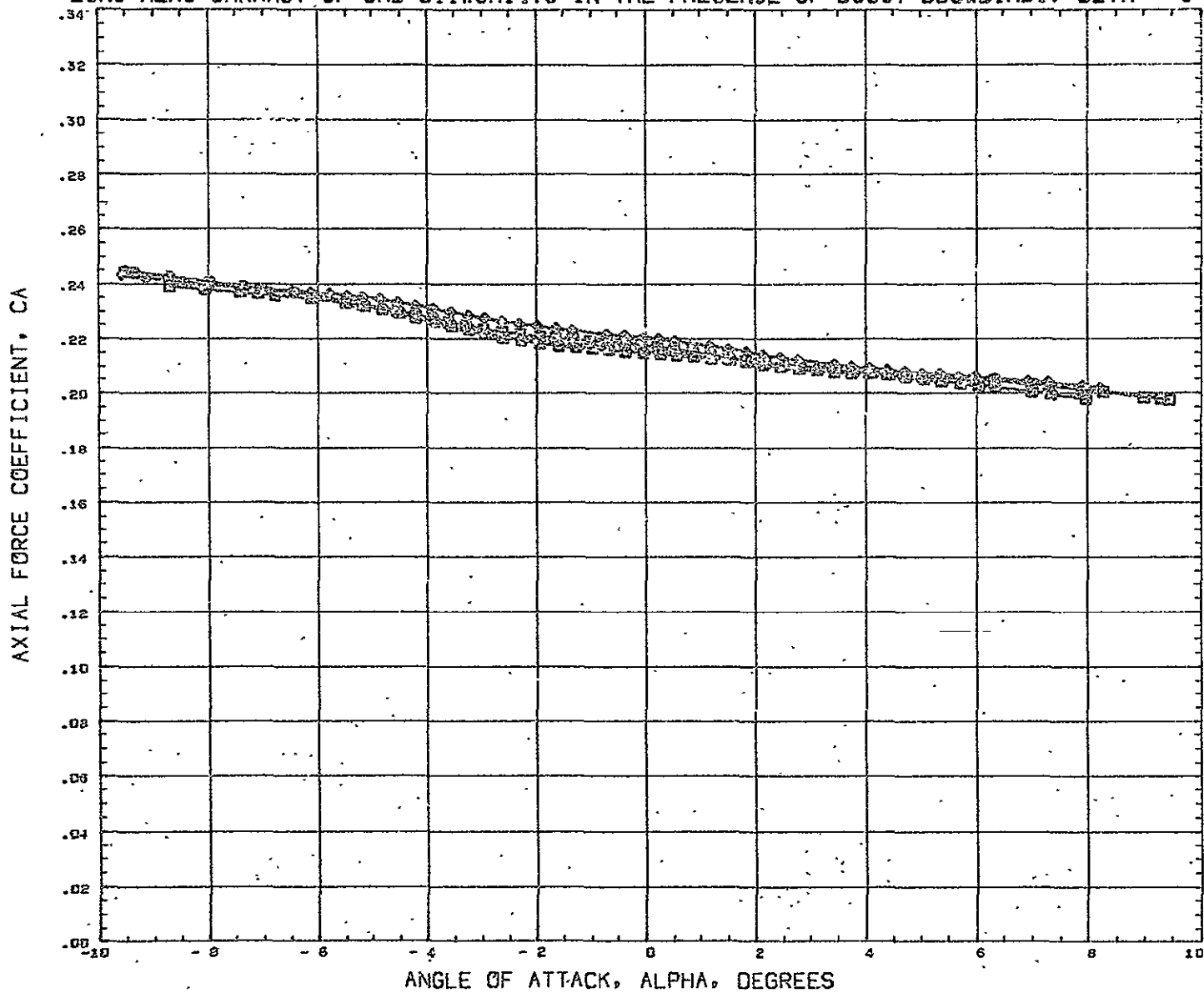


SYMBOL	SEFFOS		PARAMETRIC VALUES			
	4.000	BETA	0.000	HACH	2.990	
□	5.000	ALFB	0.000	BETB	0.000	
◇	6.000					

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0.



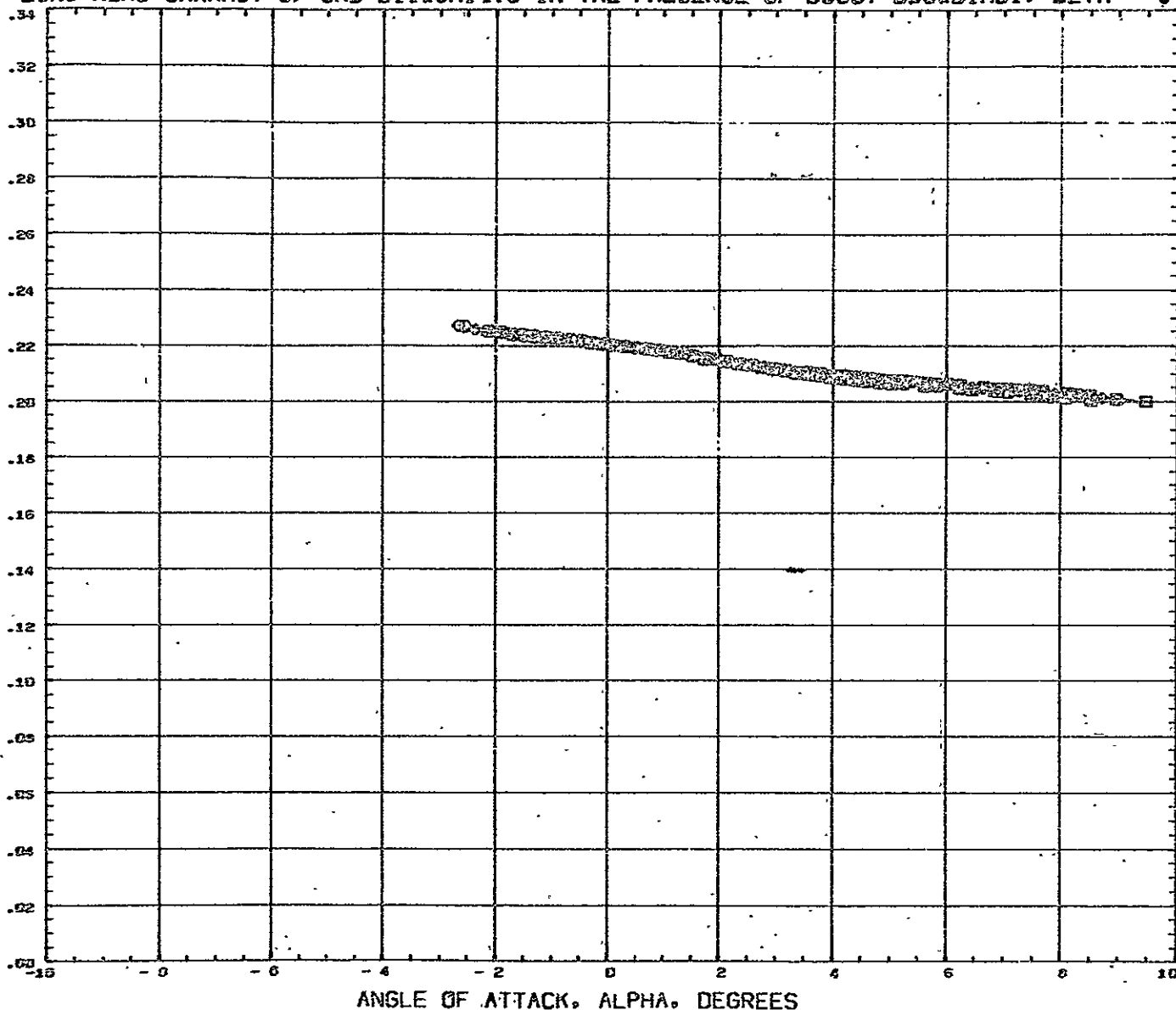
SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	MACH	2.990
□	8.000	ALPB	0.000	BETB	0.000
○	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

AXIAL FORCE COEFFICIENT, CA



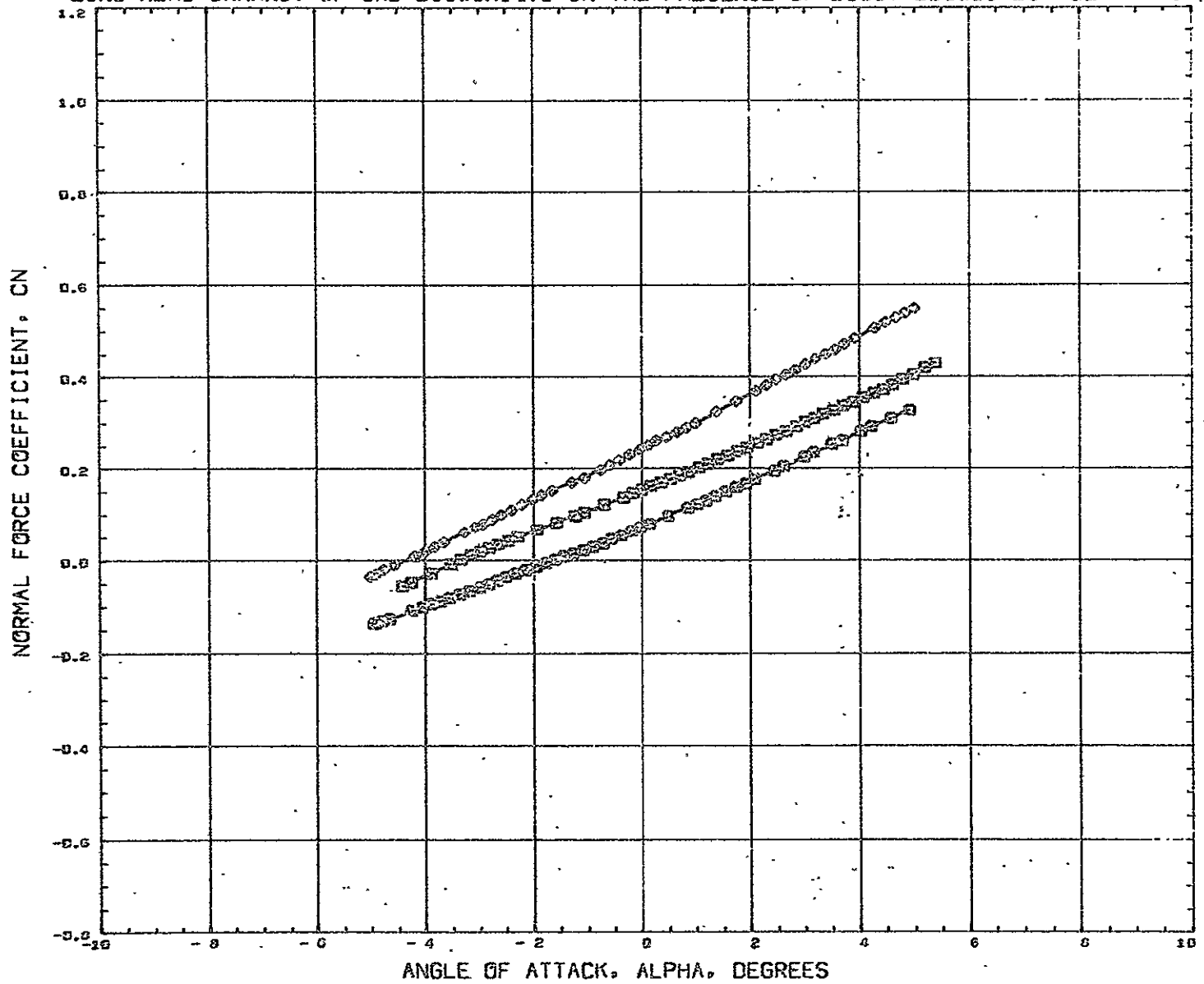
ANGLE OF ATTACK, ALPHA, DEGREES

MDOL	SEFFOS	PARAMETRIC VALUES			
Q	10.000	BETA	0.000	MACH	2.990
Q	11.000	ALFB	0.000	BETS	0.000
Q	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRF	9.3880	IN
YNRF	0.0000	IN
ZNRF	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

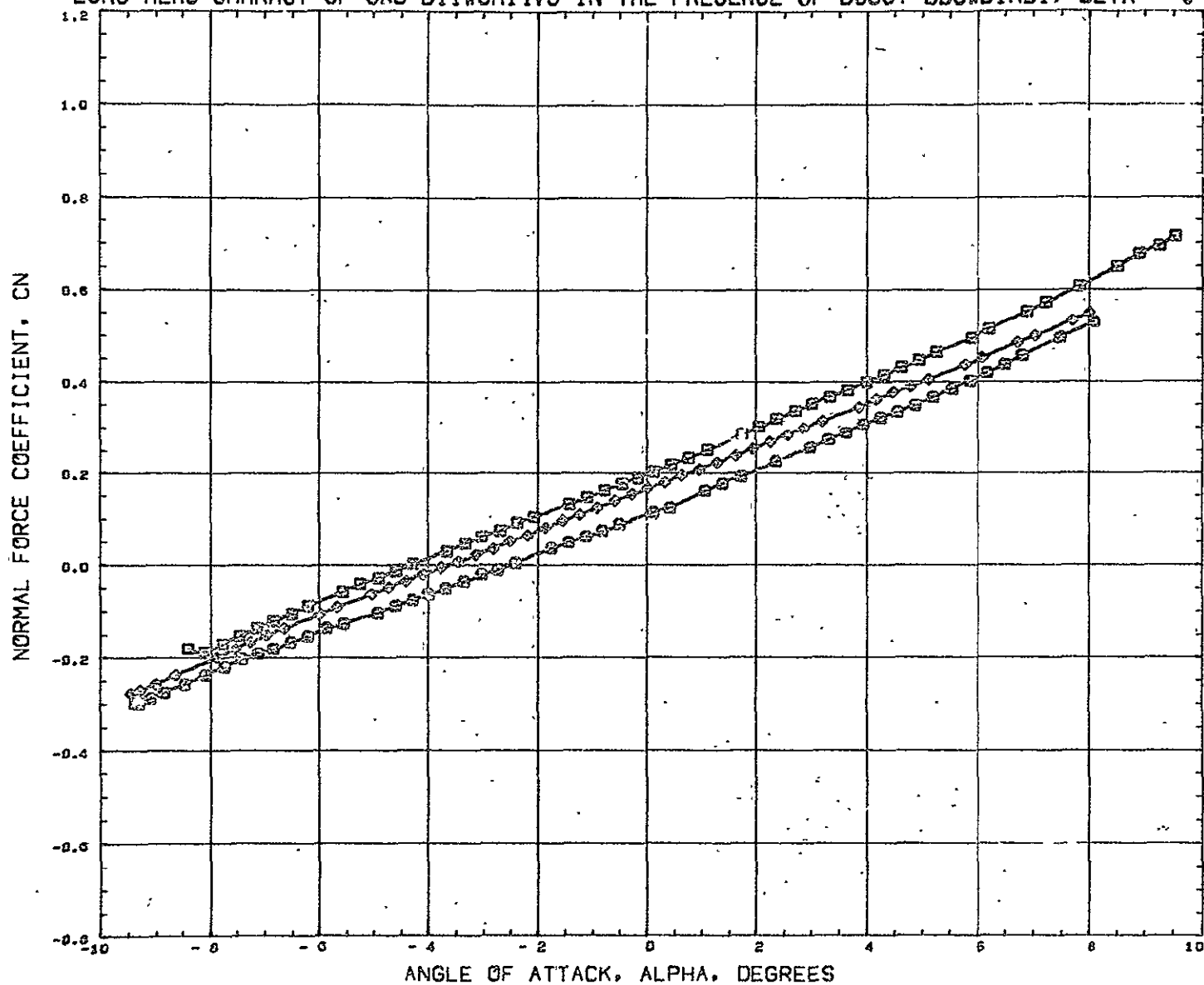


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	1.000	BETA	0.000	MACH	2.990
□	2.000	ALPB	0.000	BETB	0.000
◇	3.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SR IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YMRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

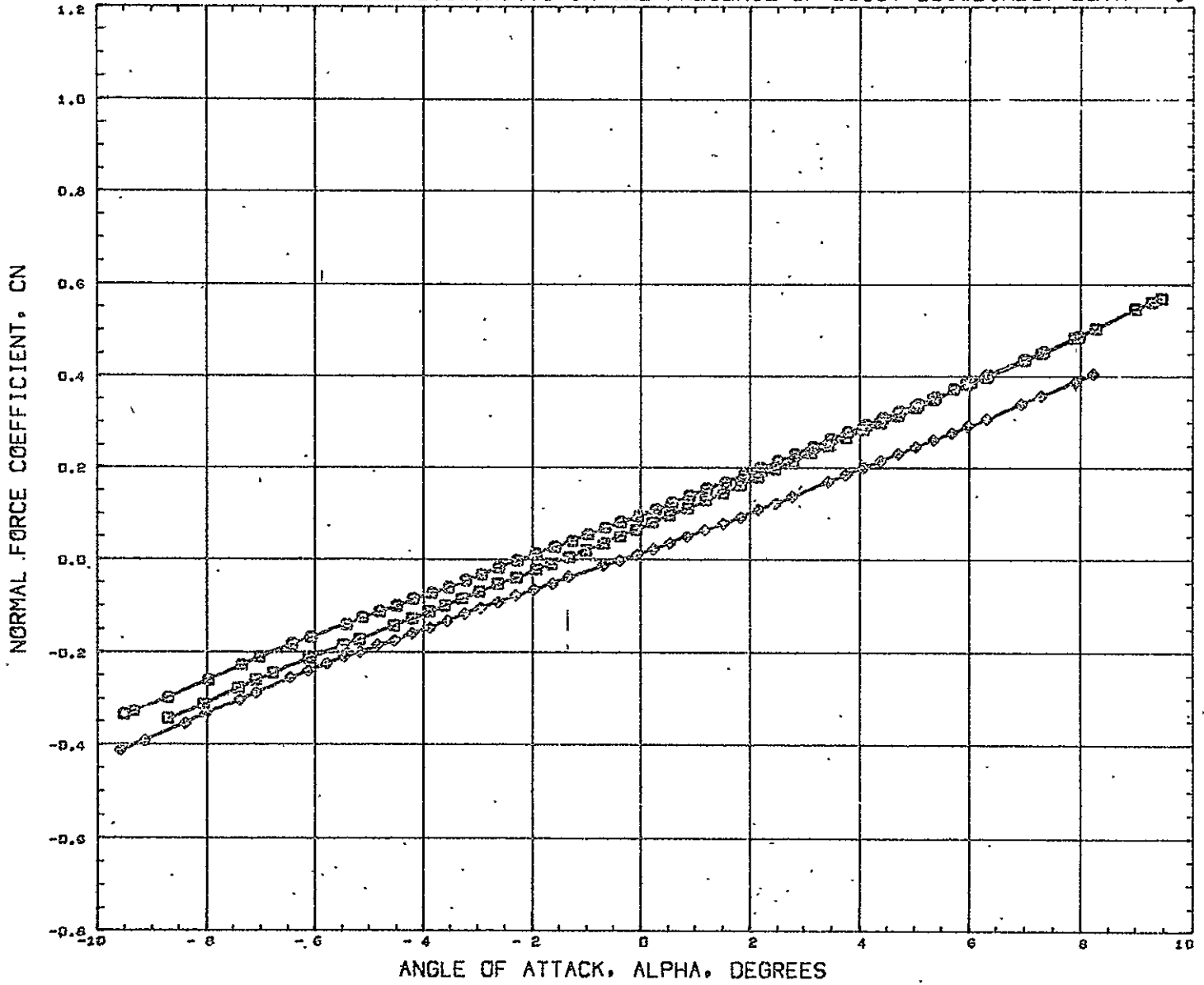


SYMBOL	SEPPOS	PARAMETRIC VALUES
□	4.000	BETA 0.000 MACH 2.990
◇	5.000	ALPB 0.000 BETB 0.000
○	6.000	

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

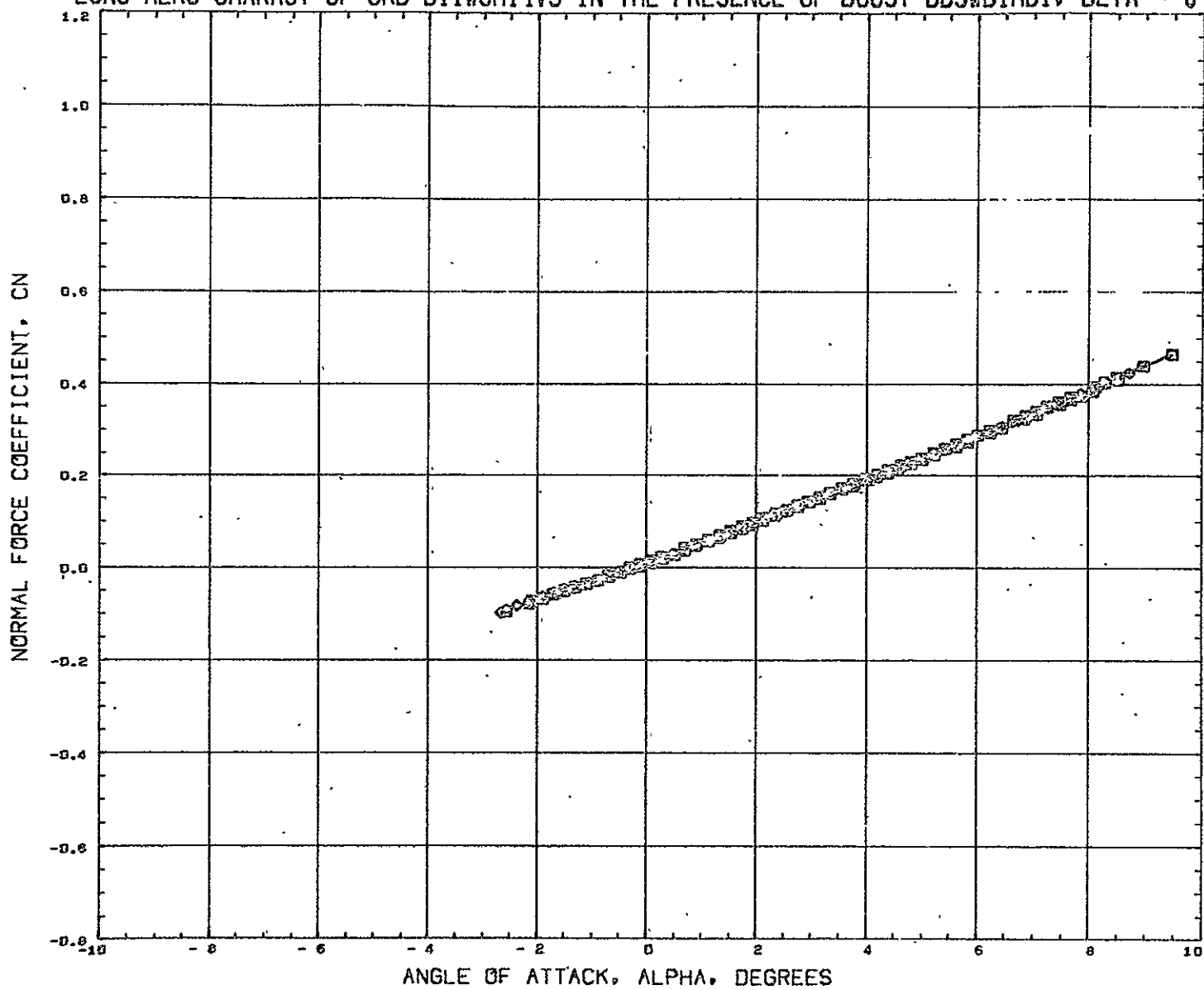


SYMBOL	SEFPOS	BETA	ALPB	PARA-METRIC VALUES	MACH	BETB
○	7.000	0.000	0.000	2.990	0.000	
□	8.000	0.000	0.000	2.990	0.000	
◇	9.000	0.000	0.000	2.990	0.000	

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3980	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

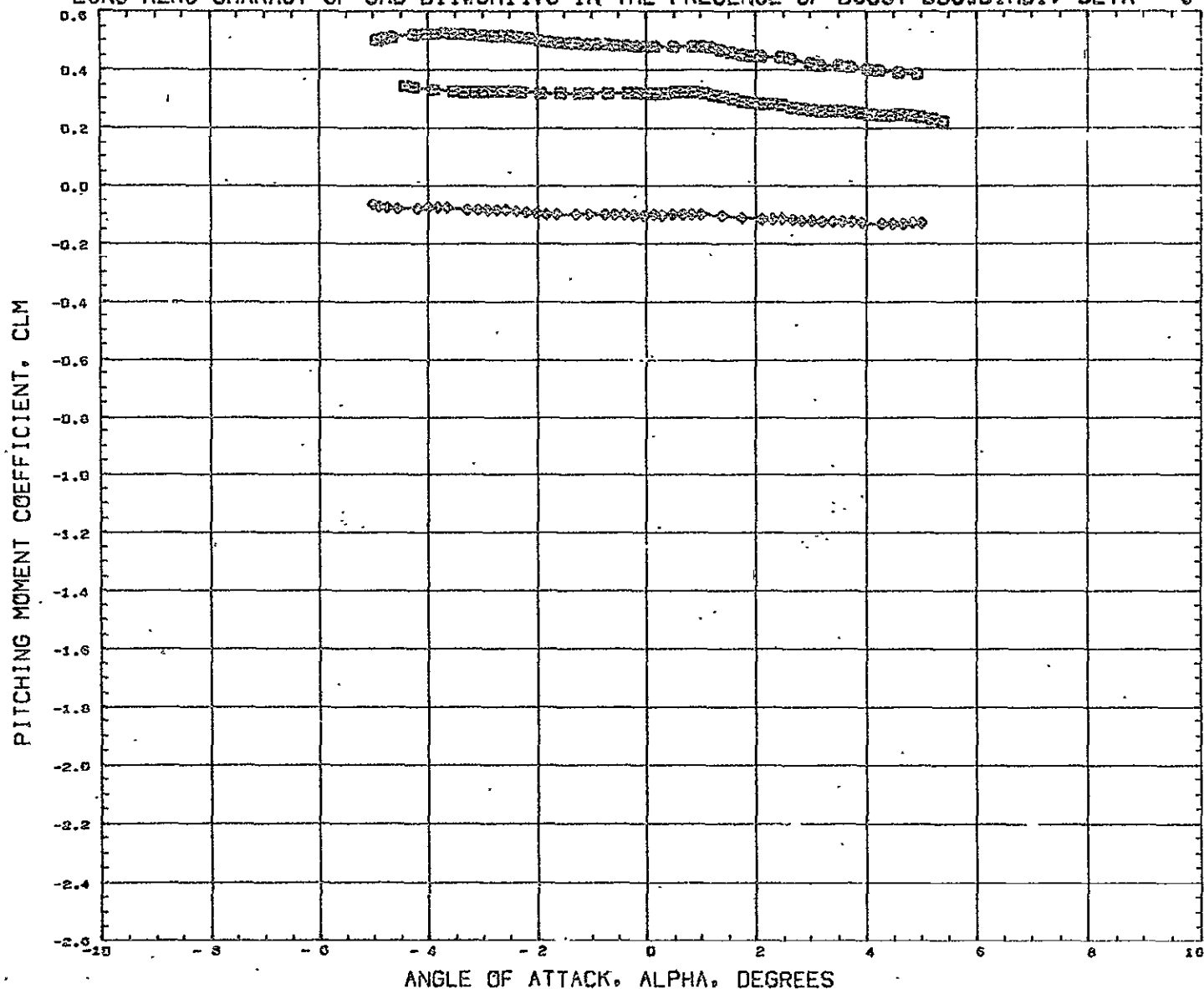


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	MACH	2.990
◇	11.000	ALPB	0.000	BETB	0.000
○	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRF	9.3880	IN
YHRF	0.0000	IN
ZHRF	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

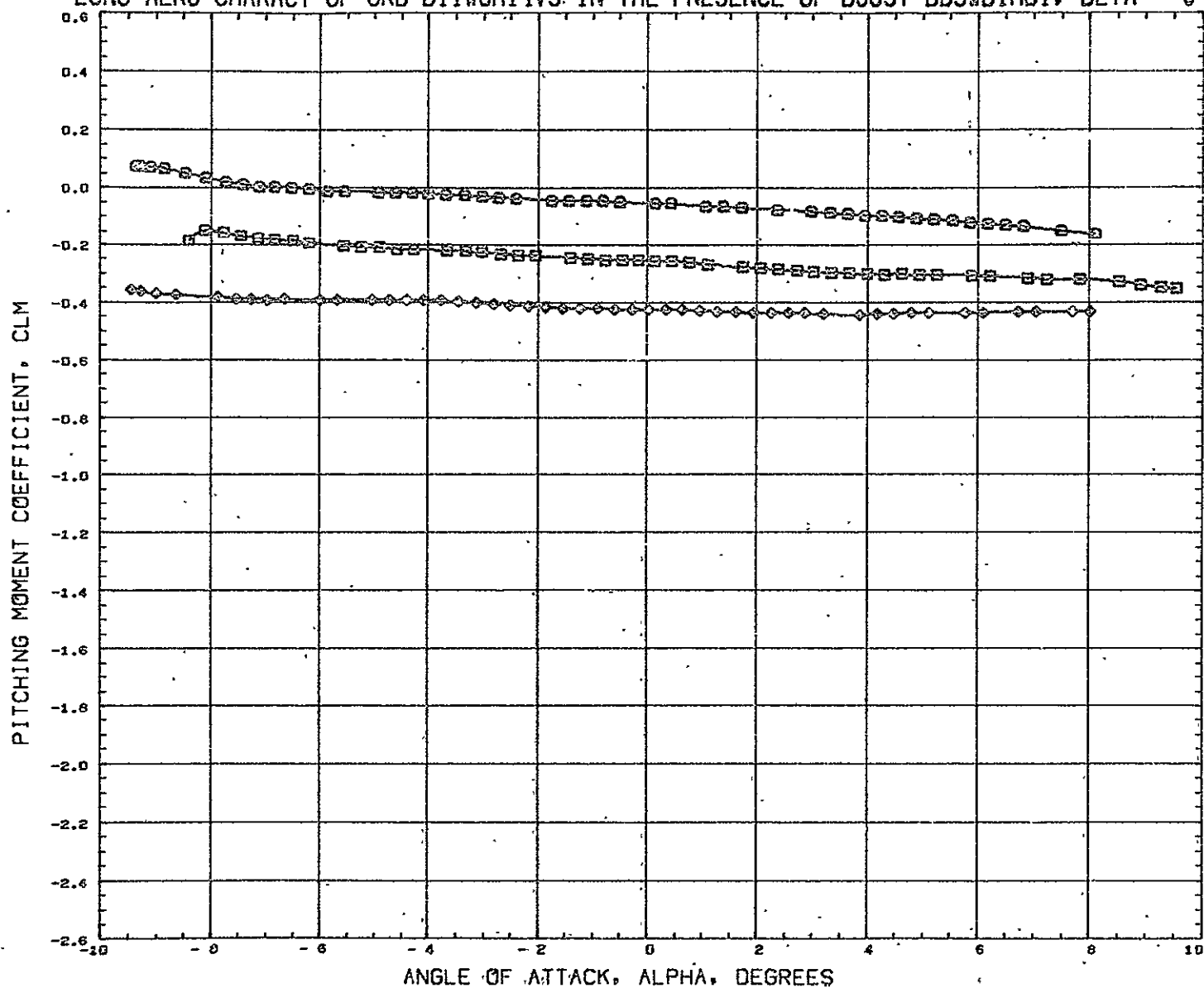


SYMBOL	SEFPOS	PARAMETRIC VALUES			
○	1.000	BETA	0.000	HACH	2.990
□	2.000	ALPB	0.000	BETB	0.000
◇	3.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

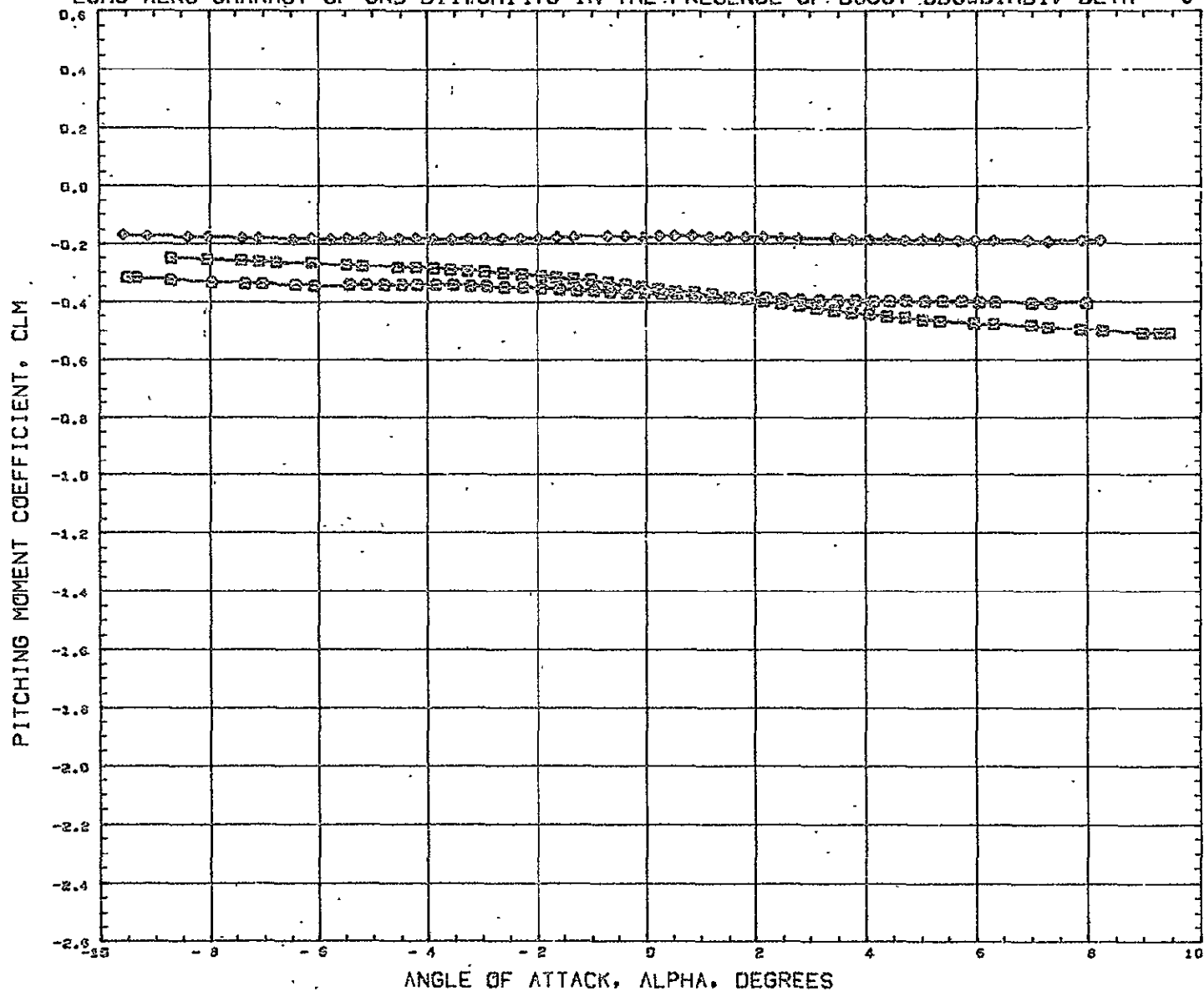


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	MACH	2.990
□	5.000	ALFB	0.000	BETB	0.000
◇	6.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

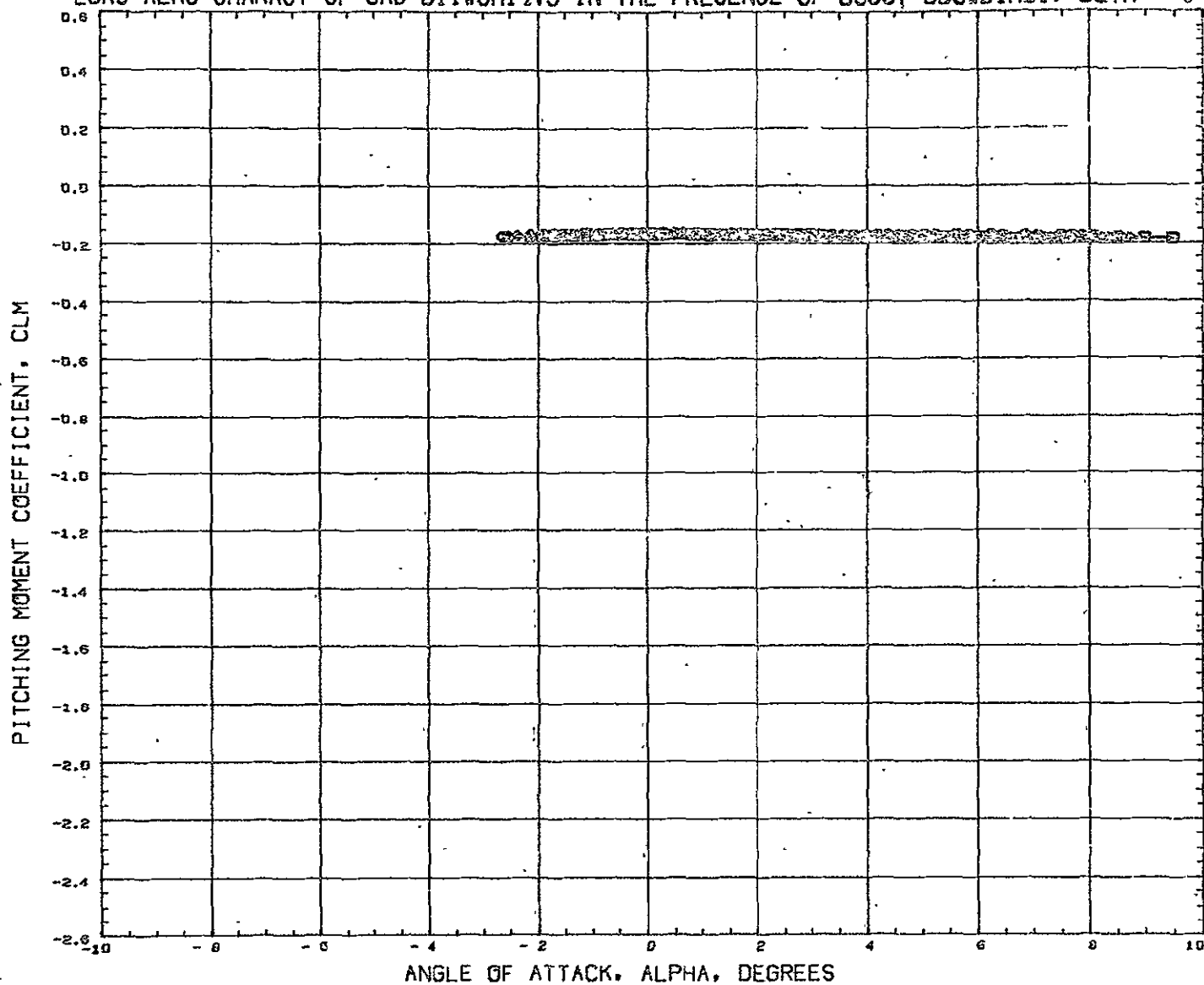


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	MACH	2.990
□	8.000	ALPB	0.000	BETB	0.000
◇	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11V6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	MACH	2.990
□	11.000	ALFA	0.000	BETA	0.000
◇	12.000				

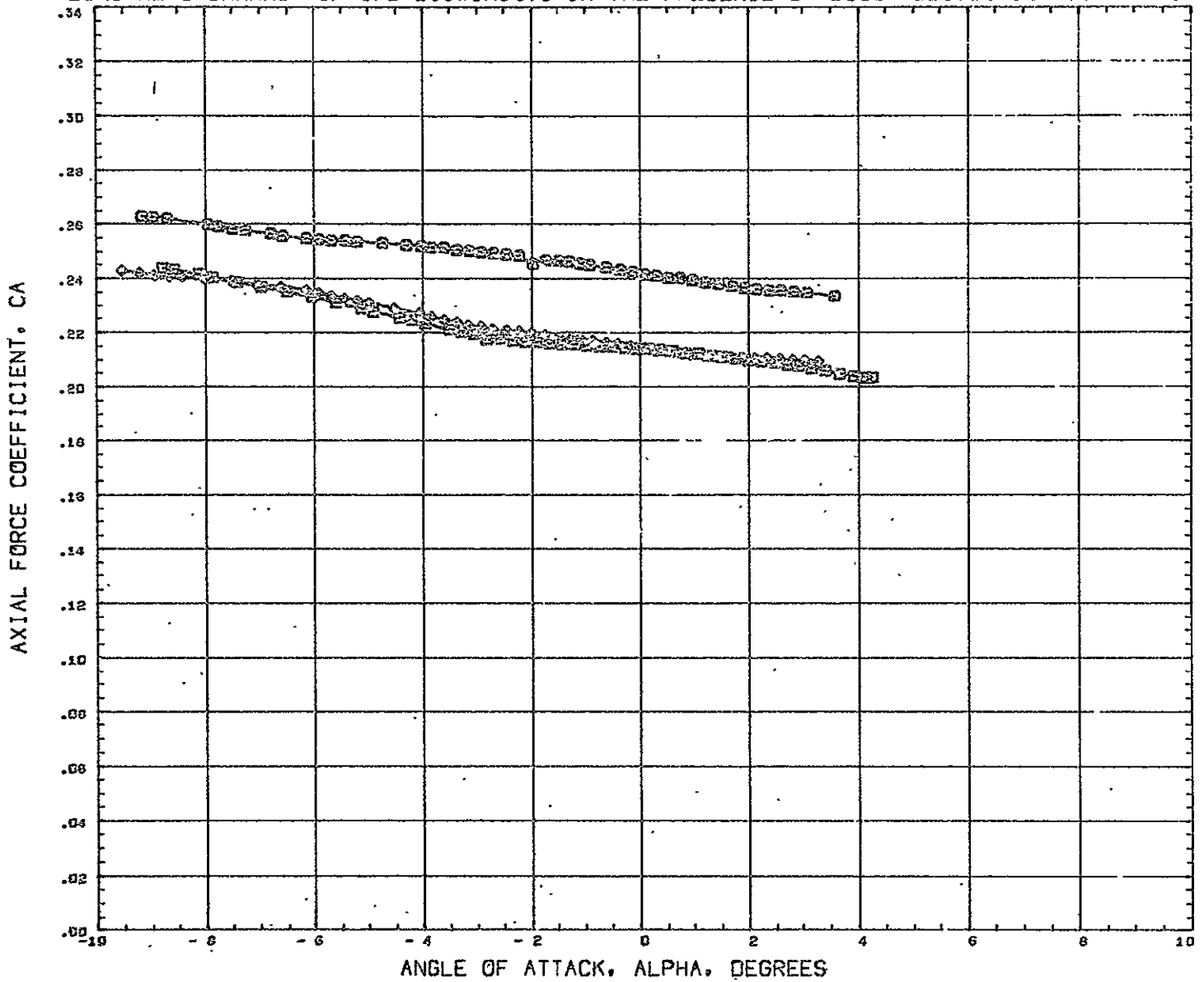
REFERENCE INFORMATION		
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REFL	1.8540	IN
REFB	12.0000	IN
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YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

MSC S-28 ORBITER B11V6H14V5 NEAR BB3WB1HB1

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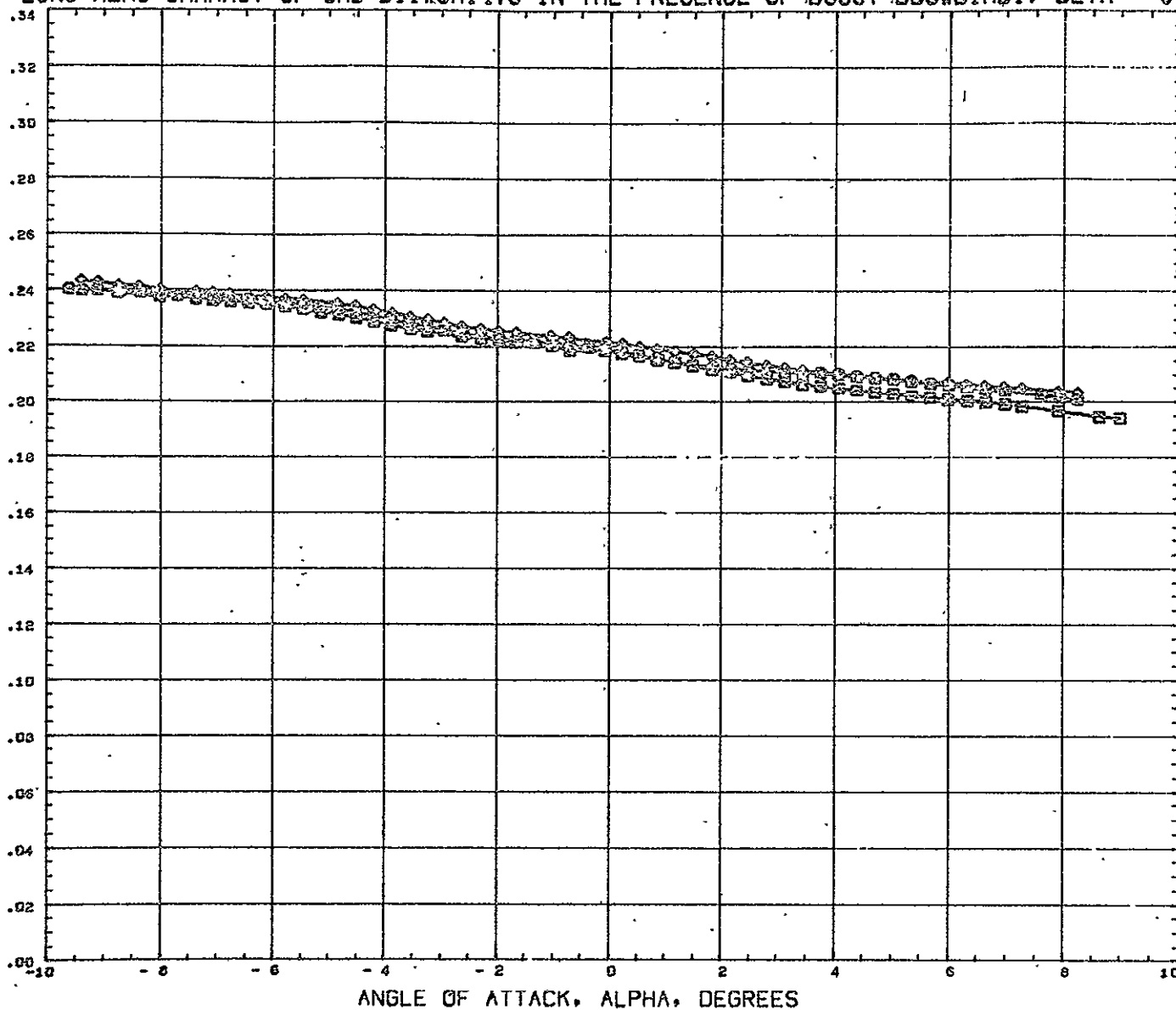
LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEPP05	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	4.000	BETA	0.000	MACH	2.990	REFS	20.6640	SQ IN
□	5.000	ALPB	- 5.000	BETB	0.000	REFL	1.8540	IN
◇	6.000					REFB	12.0000	IN
						XMRP	9.3880	IN
						YNRP	0.0000	IN
						ZMRP	1.4600	IN
						SCALE	0.0088	
REFERENCE FILE		.0000						

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

AXIAL FORCE COEFFICIENT, CA

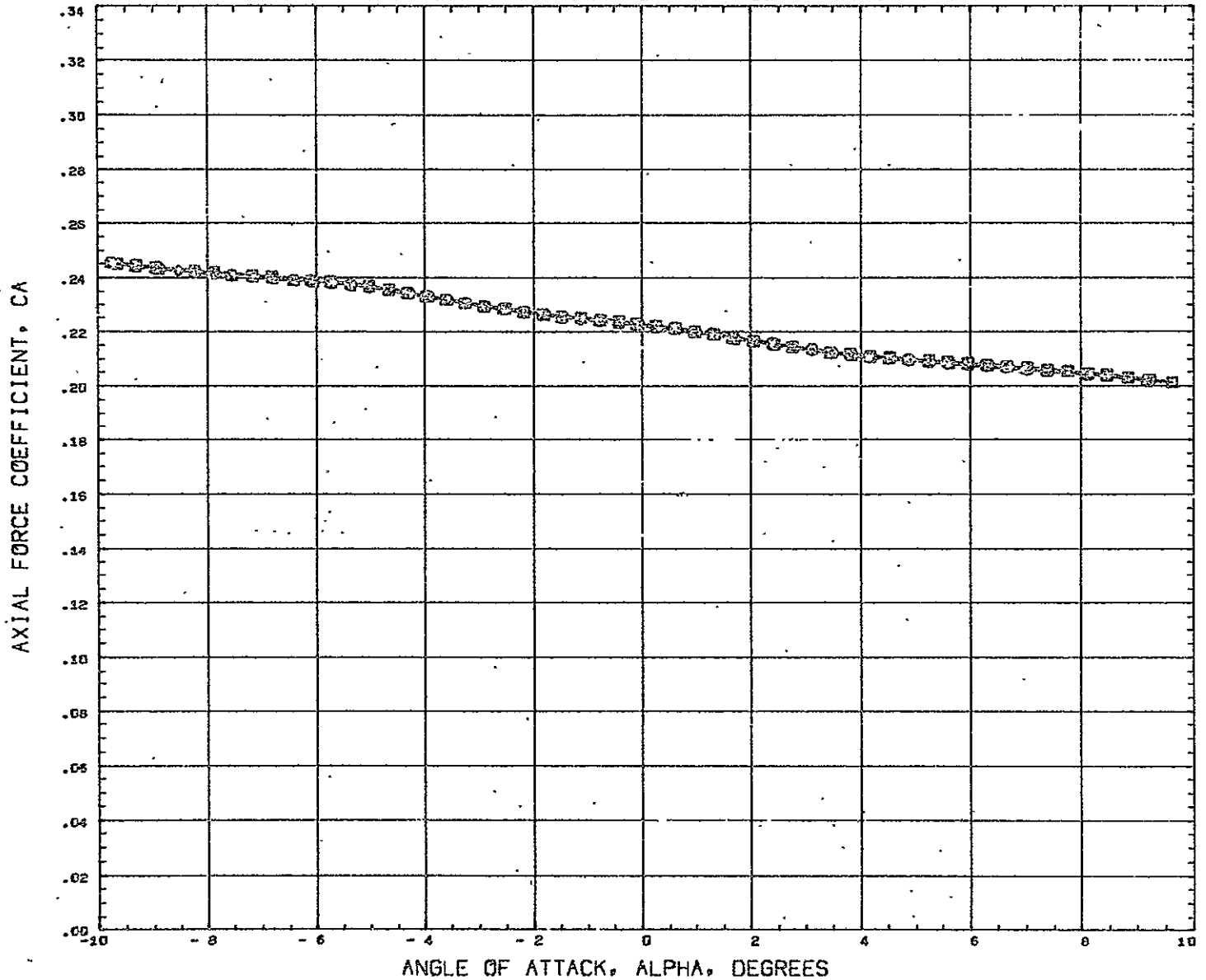


SYMBOL	SEFPOS	PARAMETRIC VALUES			
○	7.000	BETA	0.000	MACH	2.990
□	8.000	ALPB	- 5.000	BETB	0.000
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

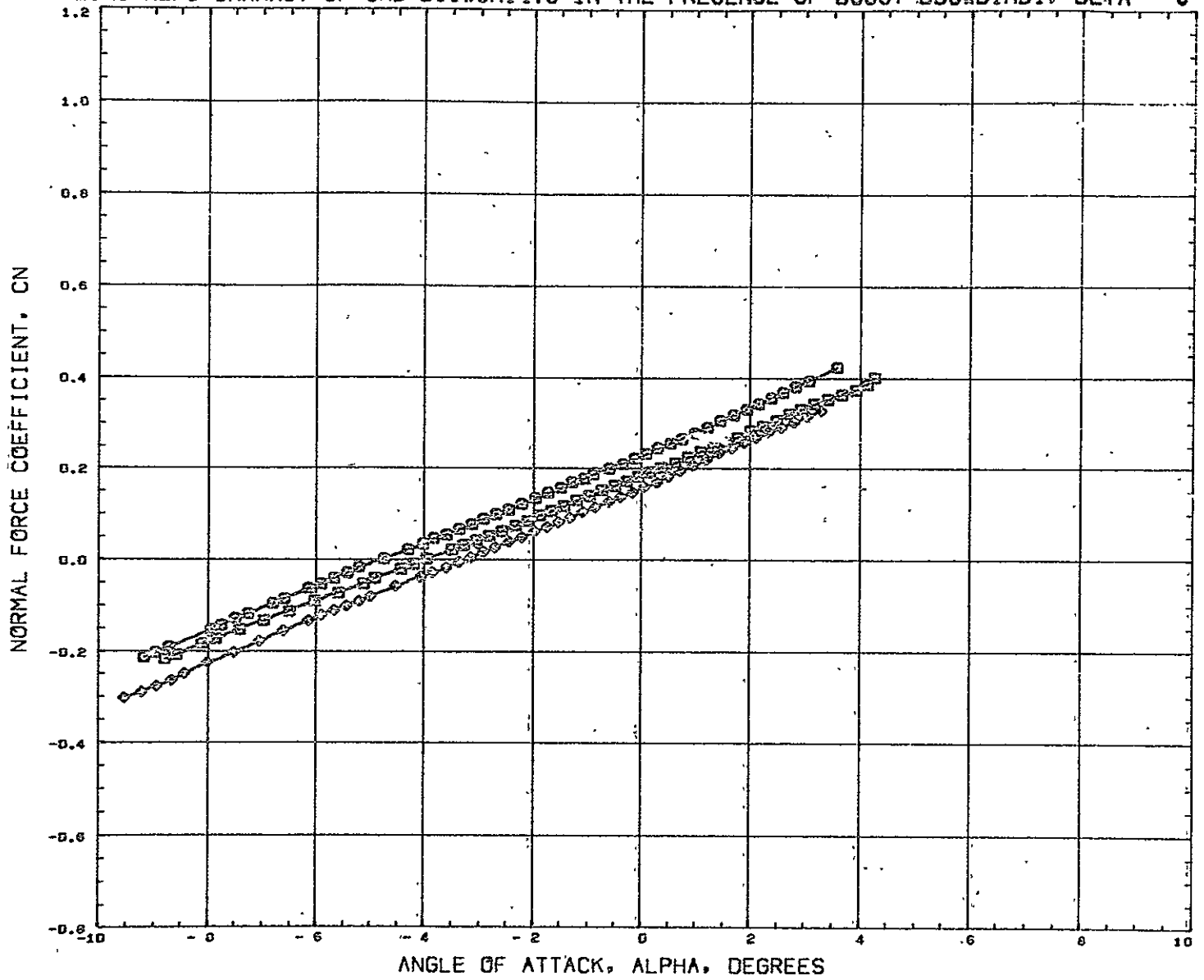


SYMBOL	SEFPOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	MACH	2.990
□	11.000	ALPB	- 5.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

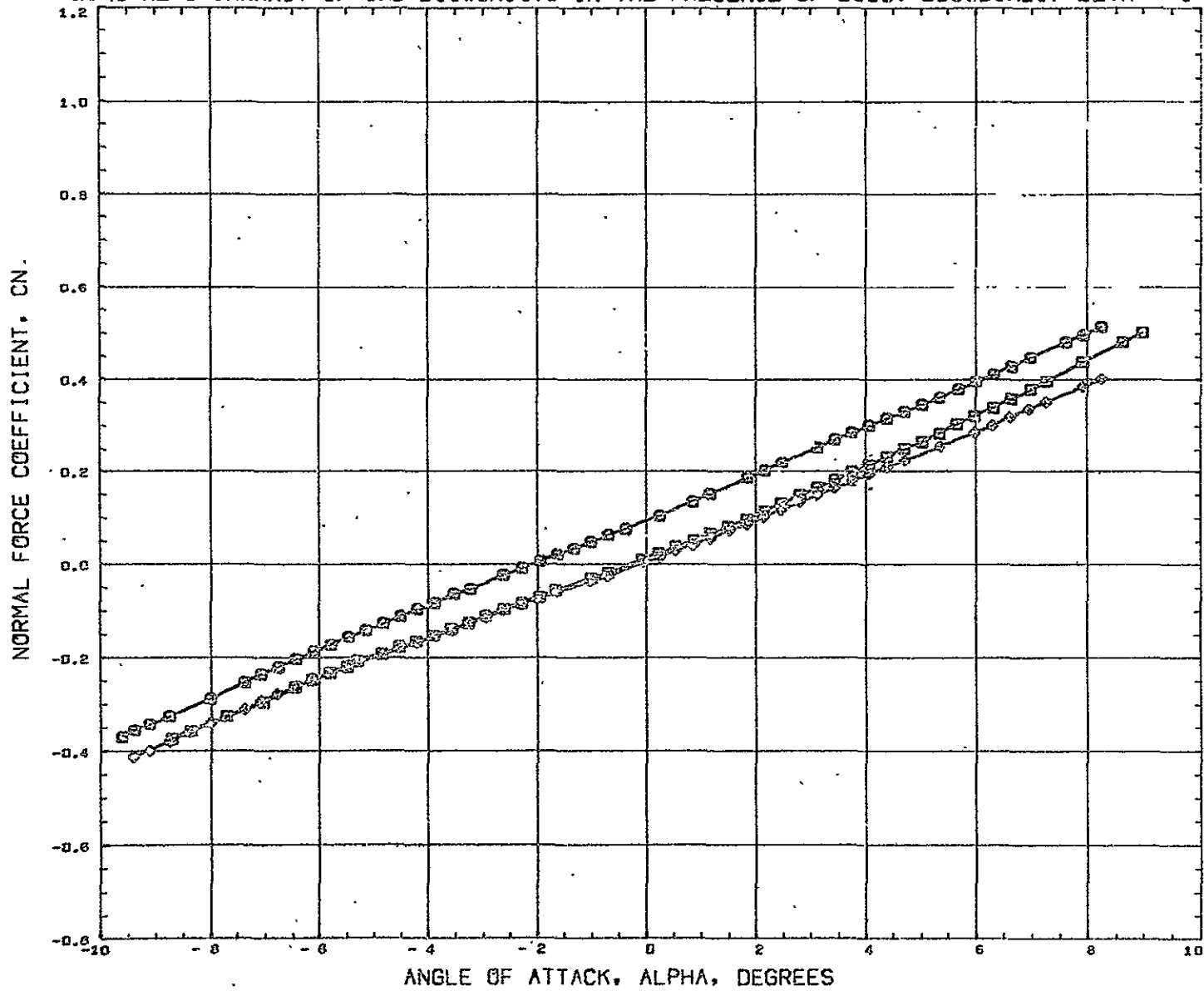


SYMBOL	SEFPOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	MACH	2.990
□	5.000	ALFB	- 5.000	BETB	0.000
◇	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0093	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

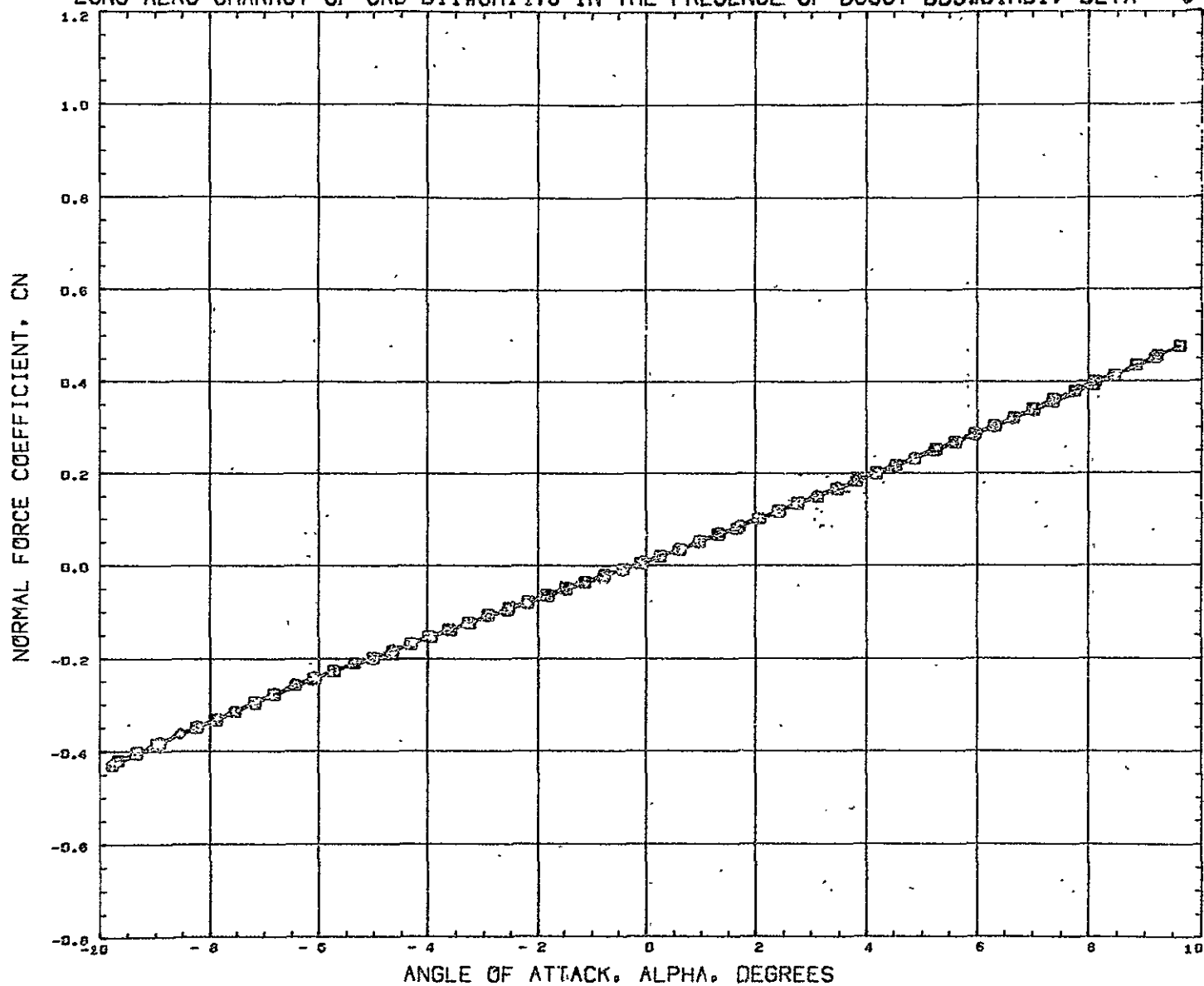


SYMBOL	SEFPOS	BETA	PARAMETRIC VALUES	MACH	BETB
□	7.000	0.000	5.000	2.990	0.000
◇	8.000	0.000	5.000	2.990	0.000
○	9.000	0.000	5.000	2.990	0.000

REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE: .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

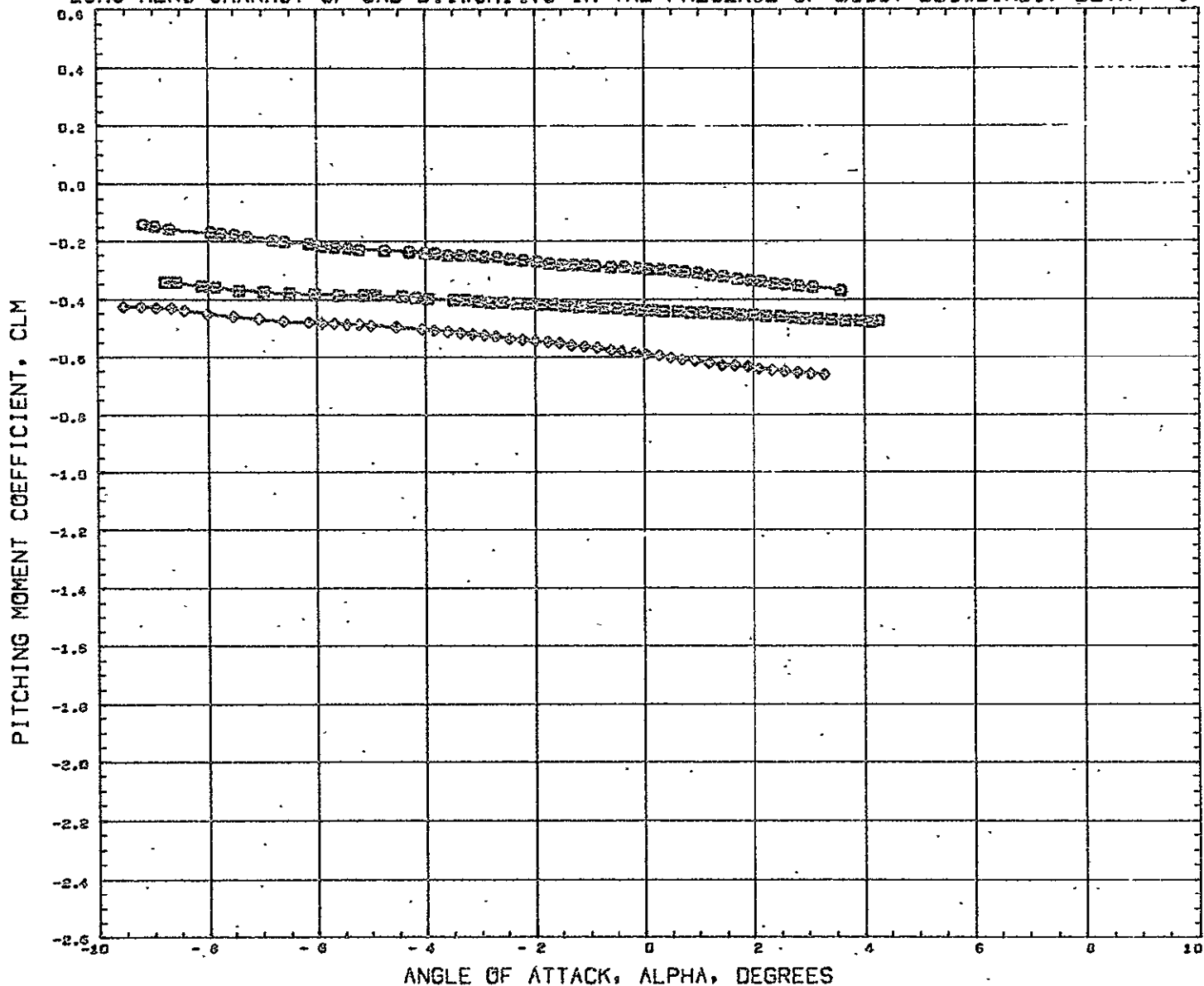


SYMBOL	SEFFOS	PARAMETRIC VALUES			
Q	10.000	BETA	0.000	MACH	2.990
□	11.000	ALPB	- 5.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

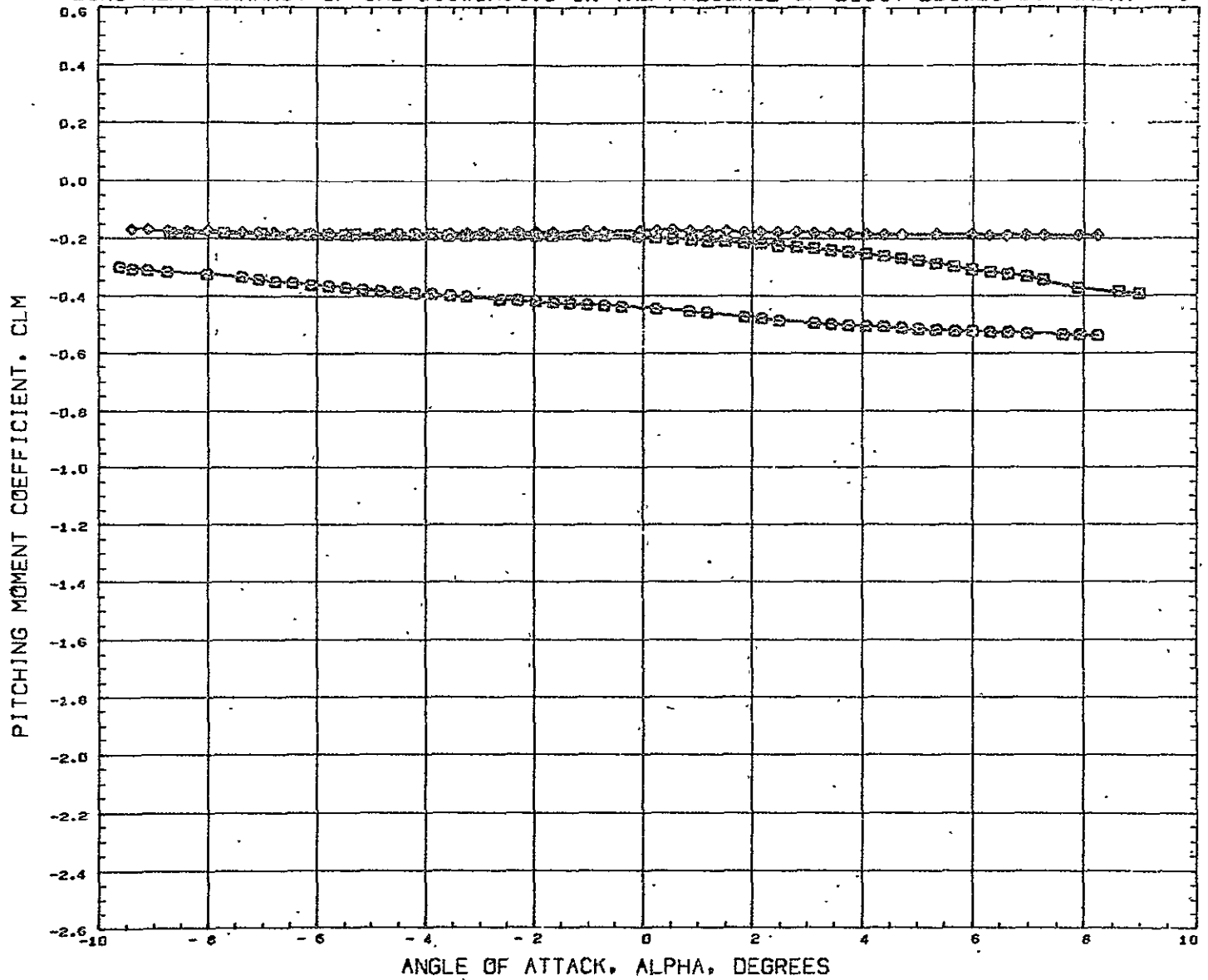
LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEPP05	BETA	PARAMETRIC VALUES	HACH	2.990	REFERENCE INFORMATION
□	4.000	ALP0	0.000	BET0	0.000	REFS 20.6640 SQ IN
◇	5.000					REFL 1.8340 IN
○	6.000					REFB 12.0000 IN
						XMRP 9.3880 IN
						YMRP 0.0000 IN
						ZMRP 1.4600 IN
						SCALE 0.0088

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

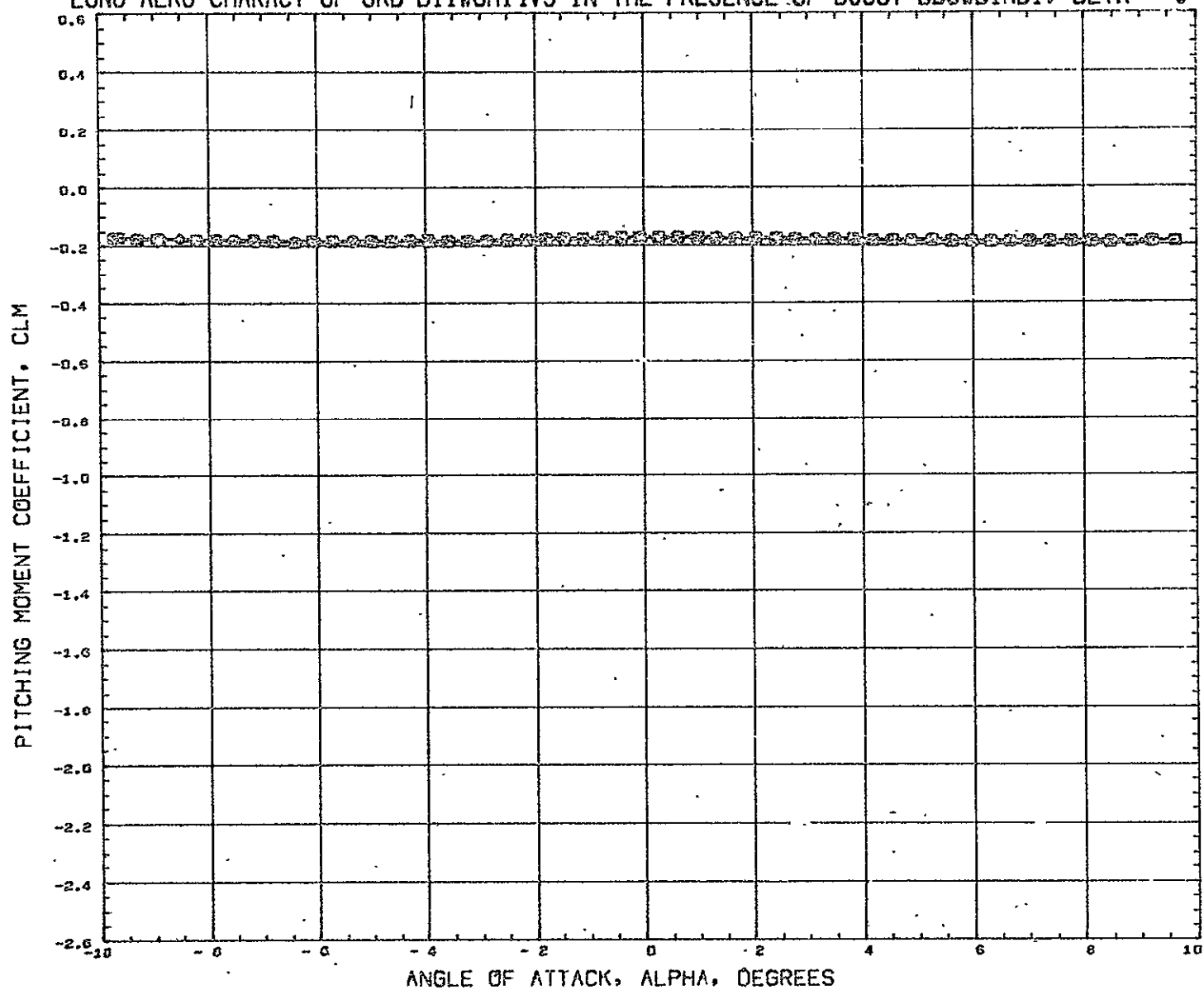


SYMBOL	SEPPOS	BETA	ALPB	PARAMETRIC VALUES	MACH	BETB
□	7.000	BETA	0.000	MACH	2.990	
◇	8.000	ALPB	- 5.000	BETB	0.000	
○	9.000					

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRF	9.3880	IN
YNRF	0.0000	IN
ZNRF	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

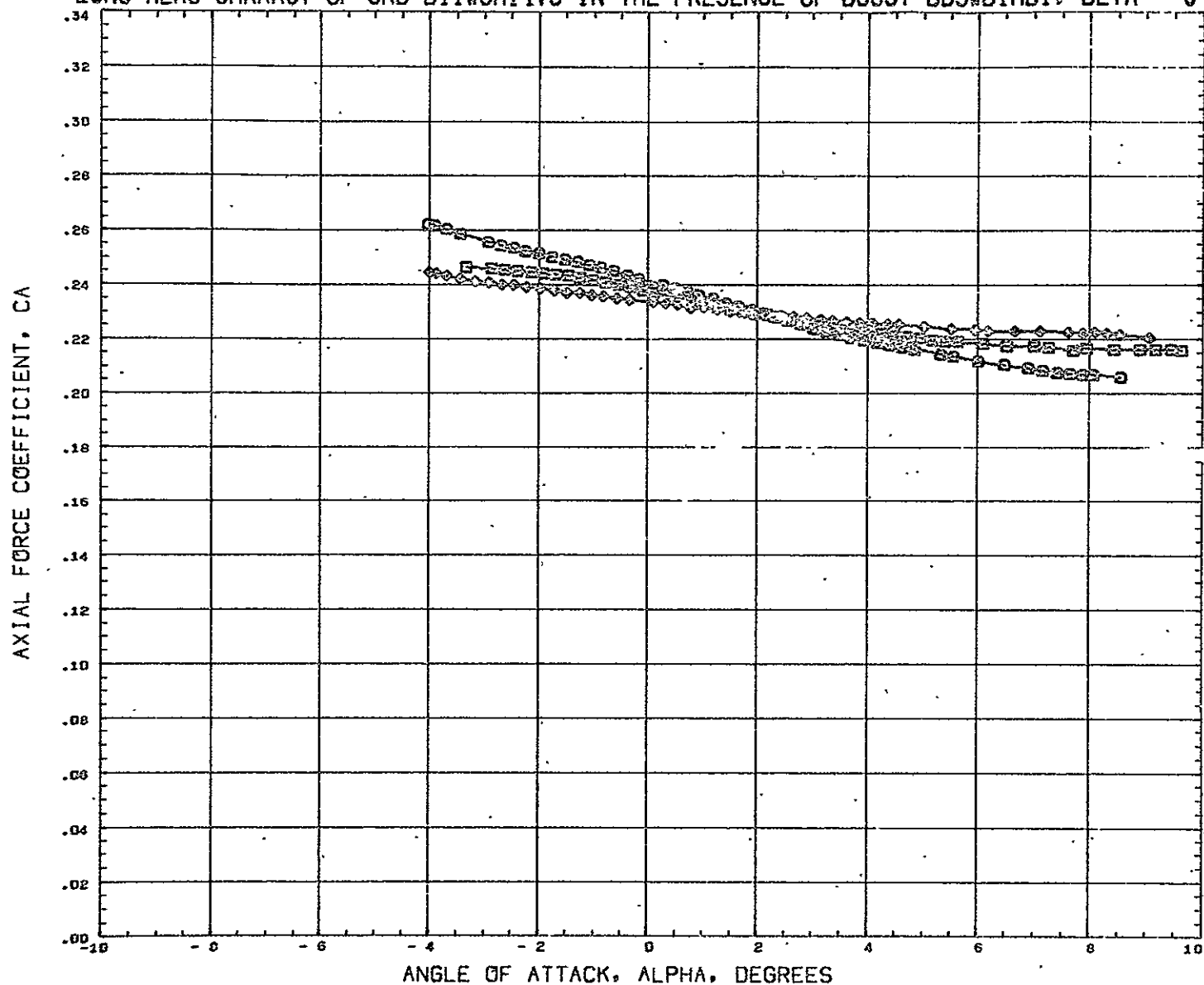


SYMBOL	SEPP05	PARAMETRIC VALUES			
○	10.000	BETA	0.000	MACH	2.990
□	11.000	ALPB	- 5.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

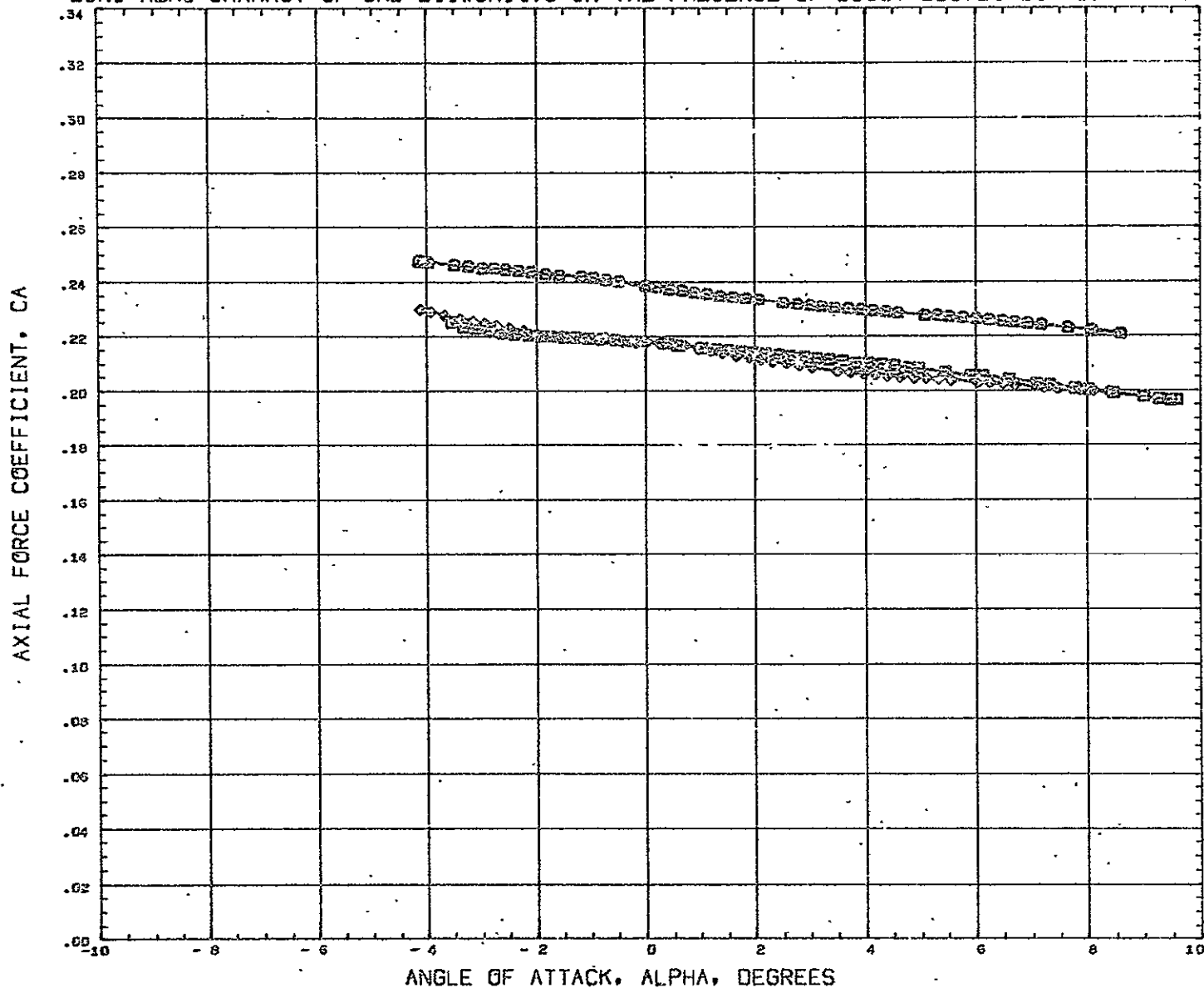


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	MACH	2.990
□	5.000	ALPB	5.000	BETB	0.000
◇	6.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
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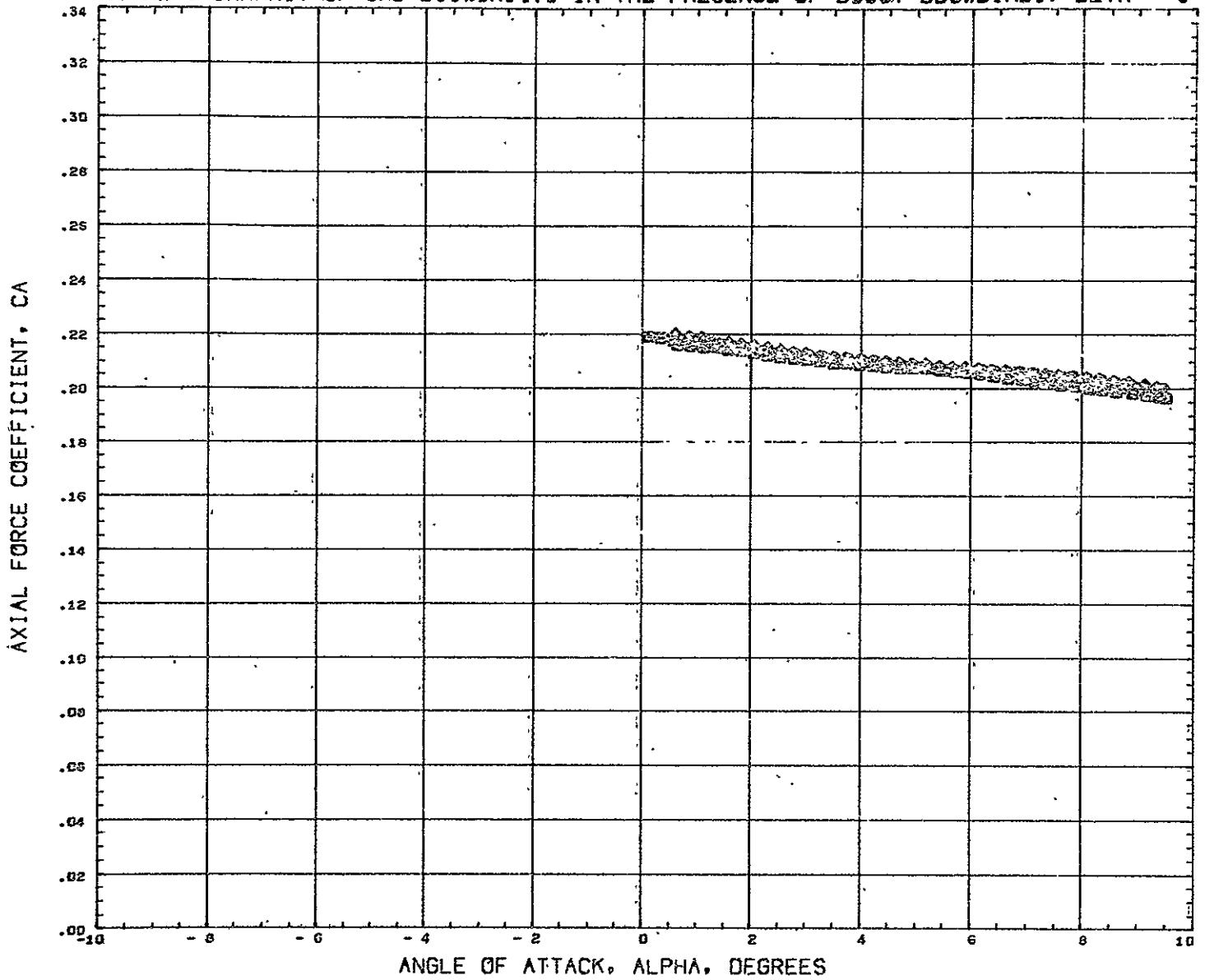
REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	7.000	BETA	0.000	MACH	2.990	REFS	20.6640	SQ IN
◇	8.000	ALFB	5.000	BETB	0.000	REFL	1.8540	IN
○	9.000					REFB	12.0000	IN
						XMRP	9.3880	IN
						YMRP	6.0000	IN
						ZMRP	1.4600	IN
						SCALE	0.0088	
REFERENCE FILE		.0000						

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

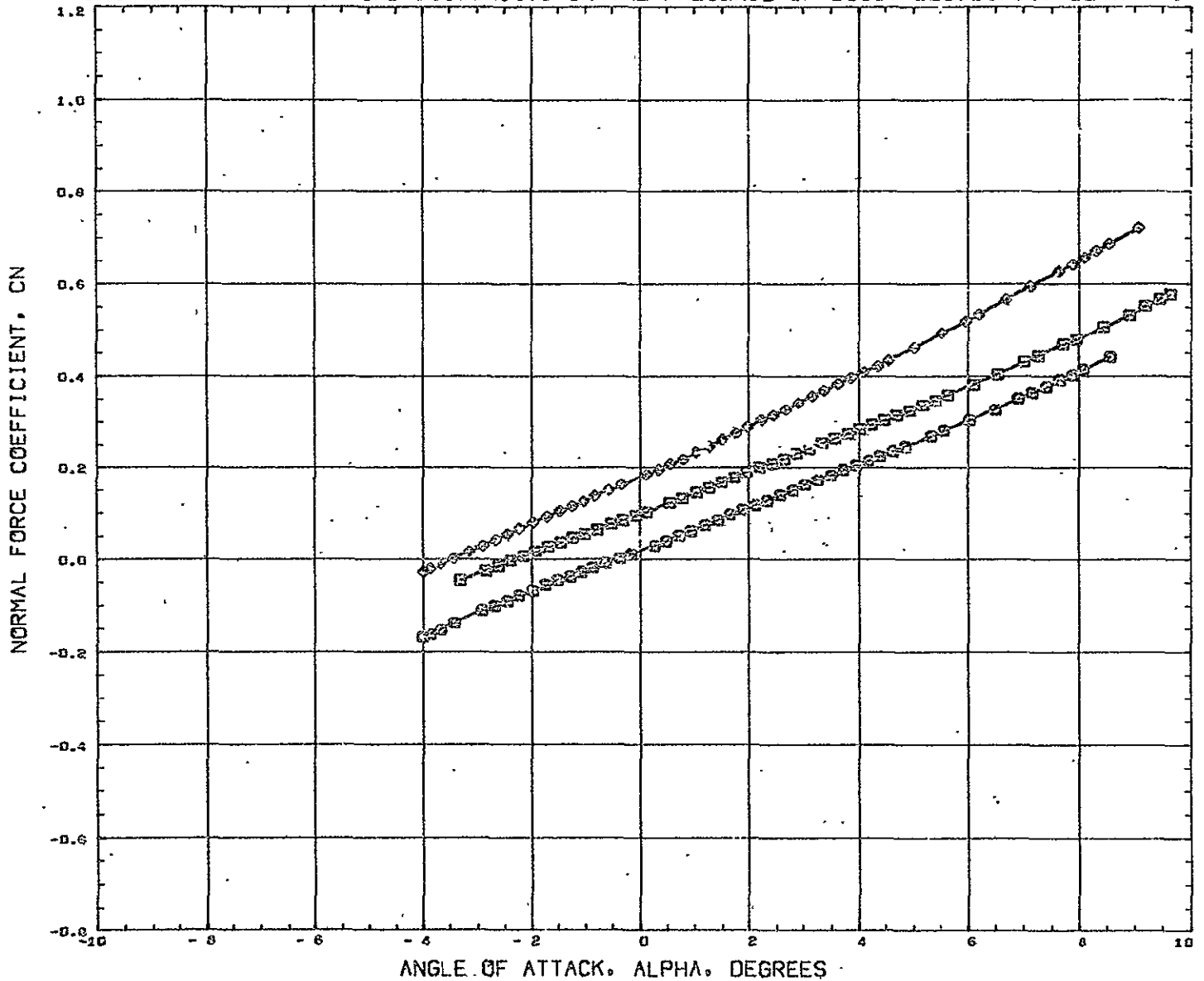


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	MACH	2.990
□	11.000	ALFB	5.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

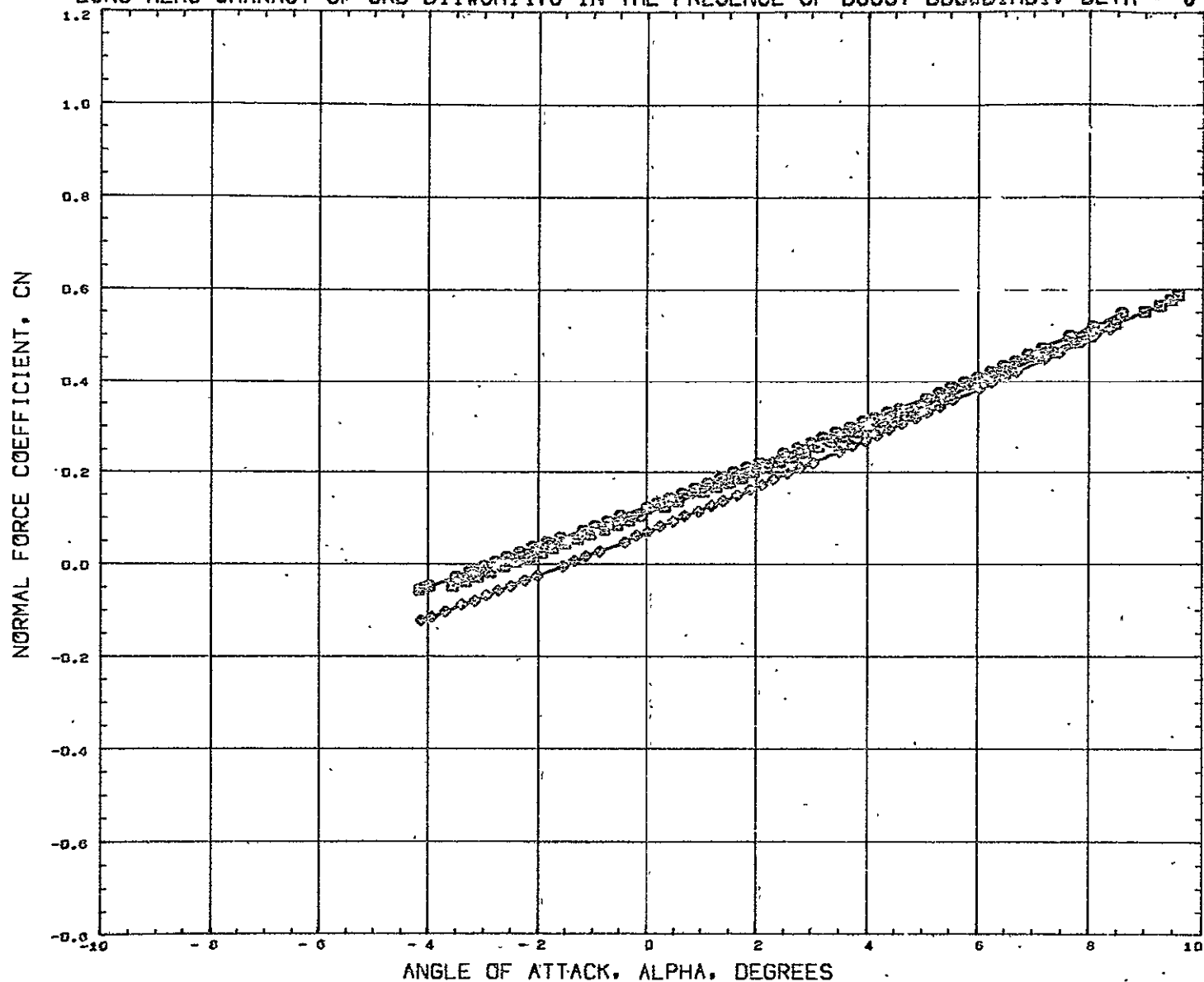
LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0



SYMBOL	SEFPOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	ALPB	MACH	BETS	REFS	REFL	SQ IN
○	4.000	0.000	5.000	2.990	0.000	20.6640	1.8540	IN
□	5.000					12.0000	9.3880	IN
◇	6.000					0.0000	1.4600	IN
						SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

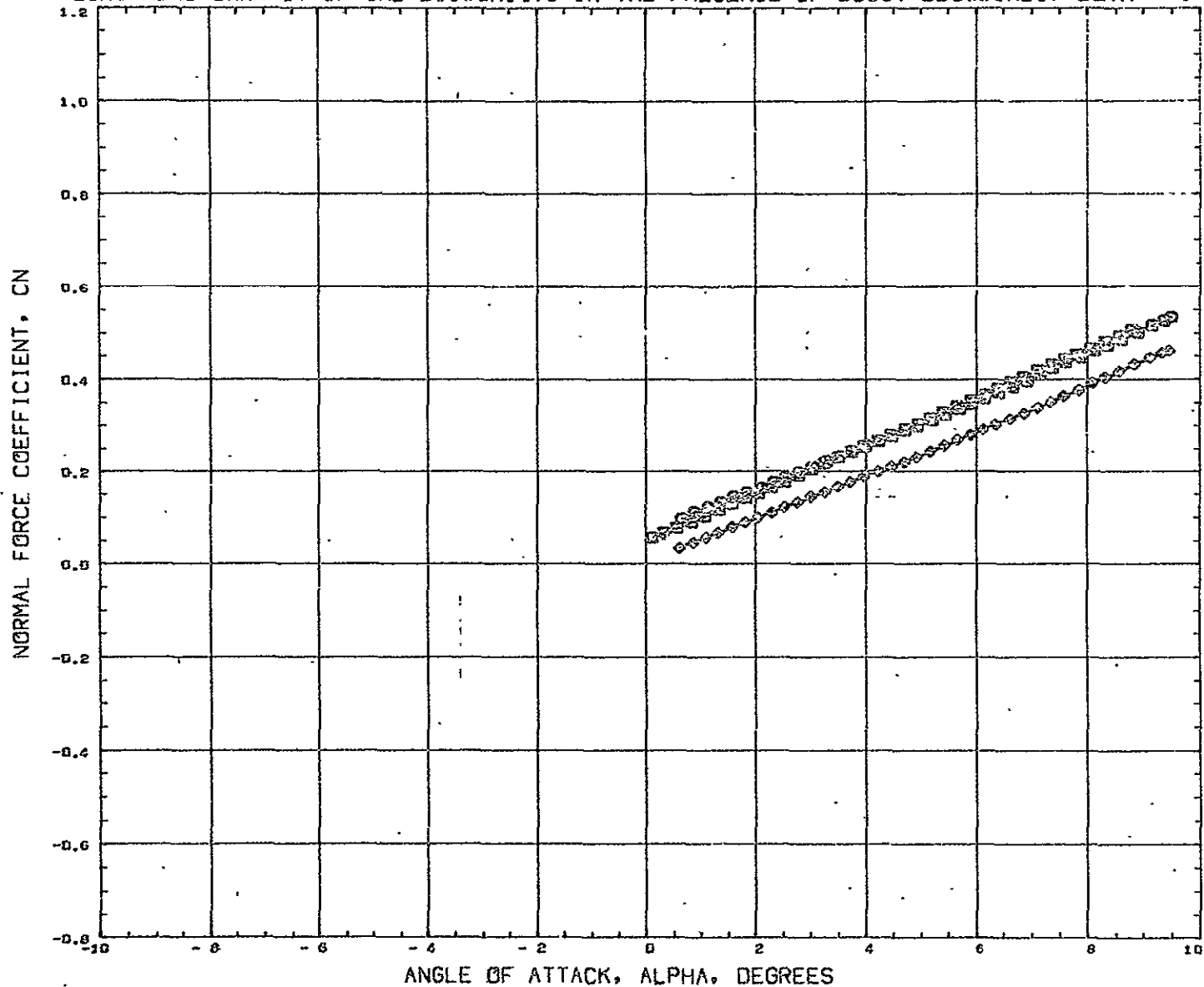


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	7.000	BETA	0.000	MACH	2.990
□	8.000	ALFB	5.000	BETB	0.000
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

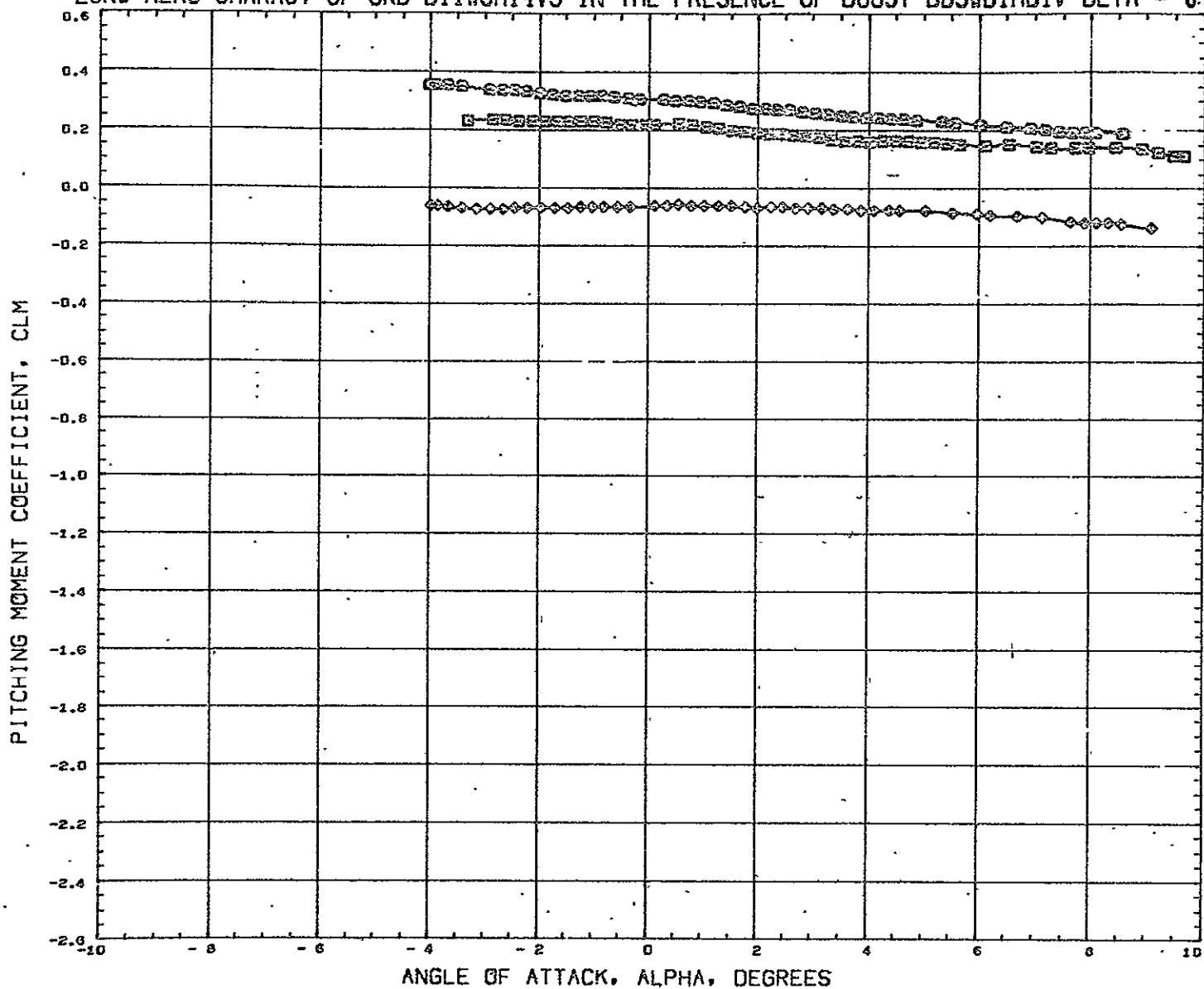


SYMBOL	SEPPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	MACH	2.990
◇	11.000	ALPB	5.000	BETB	0.000
○	12.000				

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0.

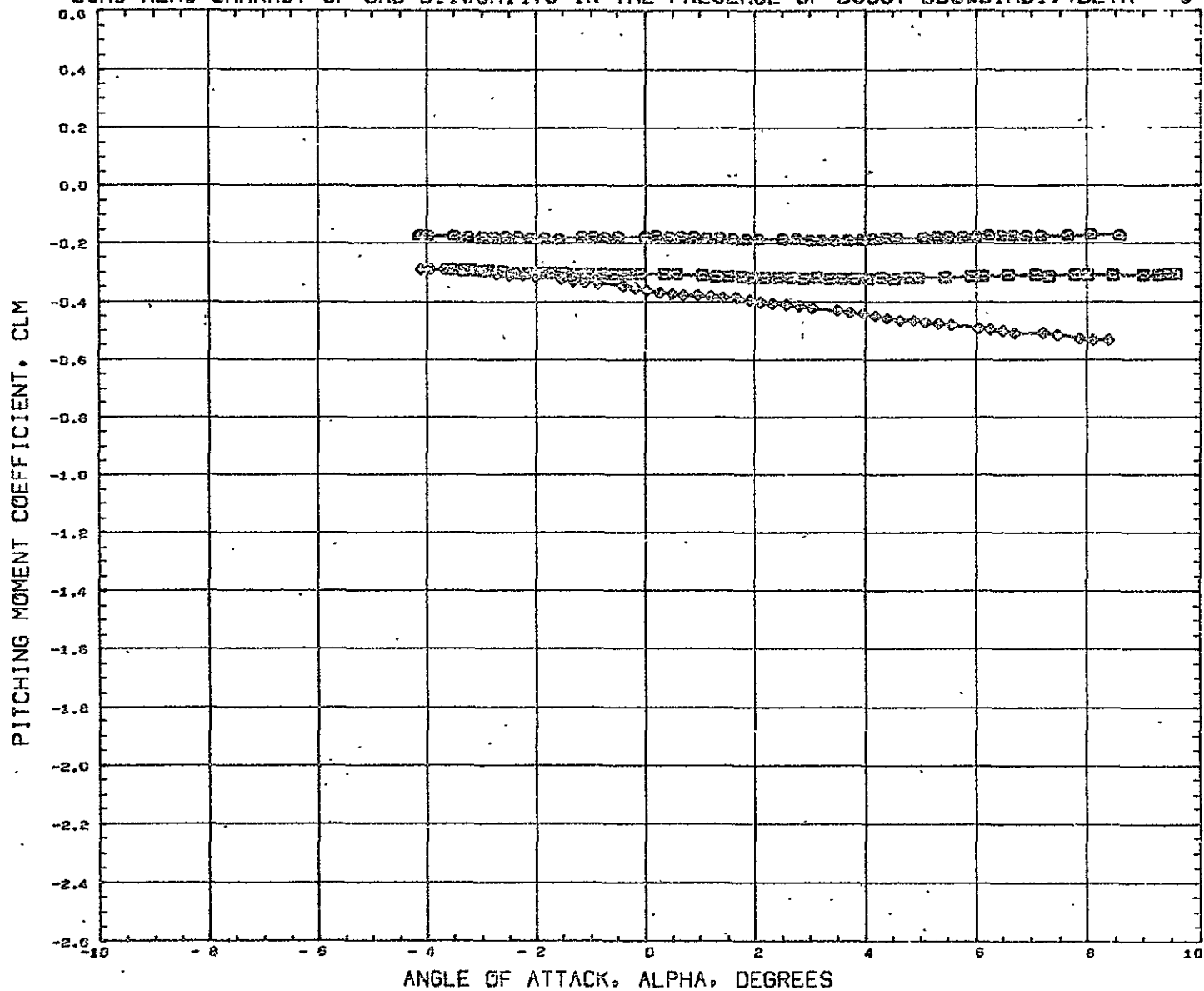


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	MACH	2.990
◇	5.000	ALPB	5.000	BETB	0.000
○	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

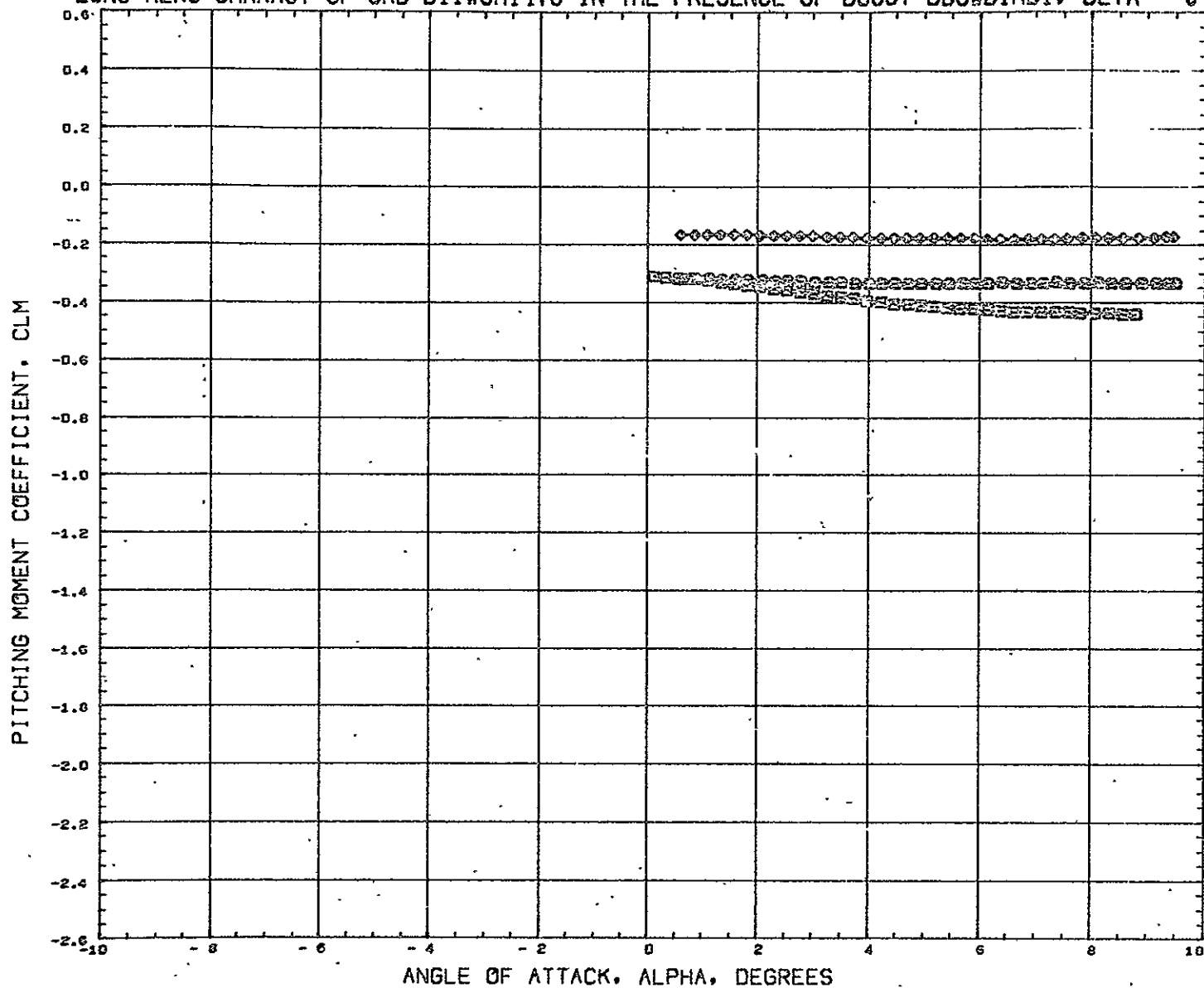


SYMBOL	SEFPOS	BETA	PARAMETRIC VALUES	NACH	2.990
○	7.000	0.000			
□	8.000	ALPB	5.000	BETB	0.000
◇	9.000				

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YNRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .5000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

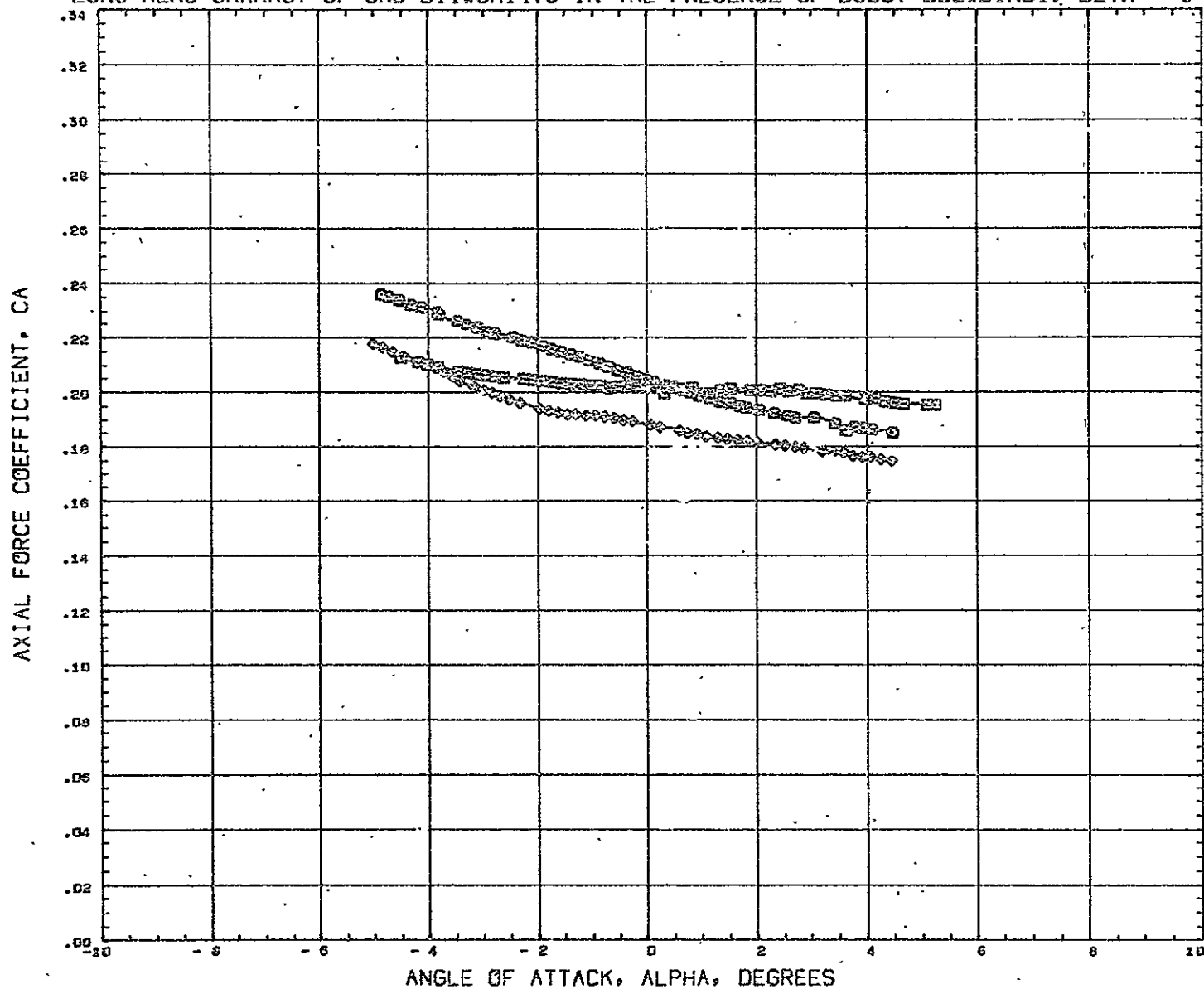


SYMBOL	SEPP05	PARAMETRIC VALUES			
□	10.000	BETA	0.000	MACH	2.990
□	11.000	ALPB	5.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

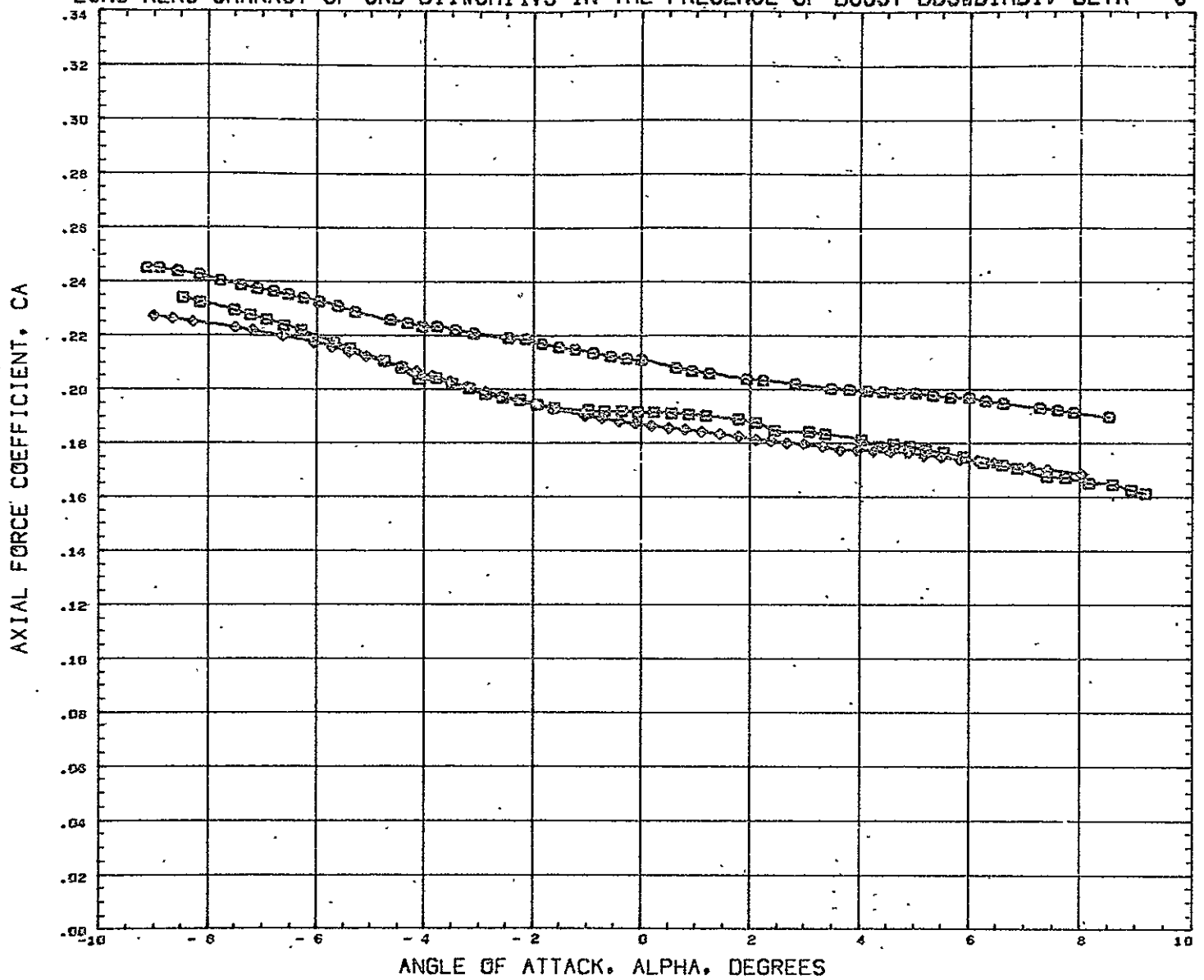
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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
□	SEPF03	BETA	0.000	MACH	4.390	REFS	20.6640	SQ IN
◇	SEPF02	ALPB	0.000	BETB	0.000	REFL	1.8540	IN
○	SEPF01					REFB	12.0000	IN
						XNRF	9.3880	IN
						YNRF	0.0000	IN
						ZNRF	1.4600	IN
						SCALE	0.0088	
REFERENCE FILE		.0000						

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

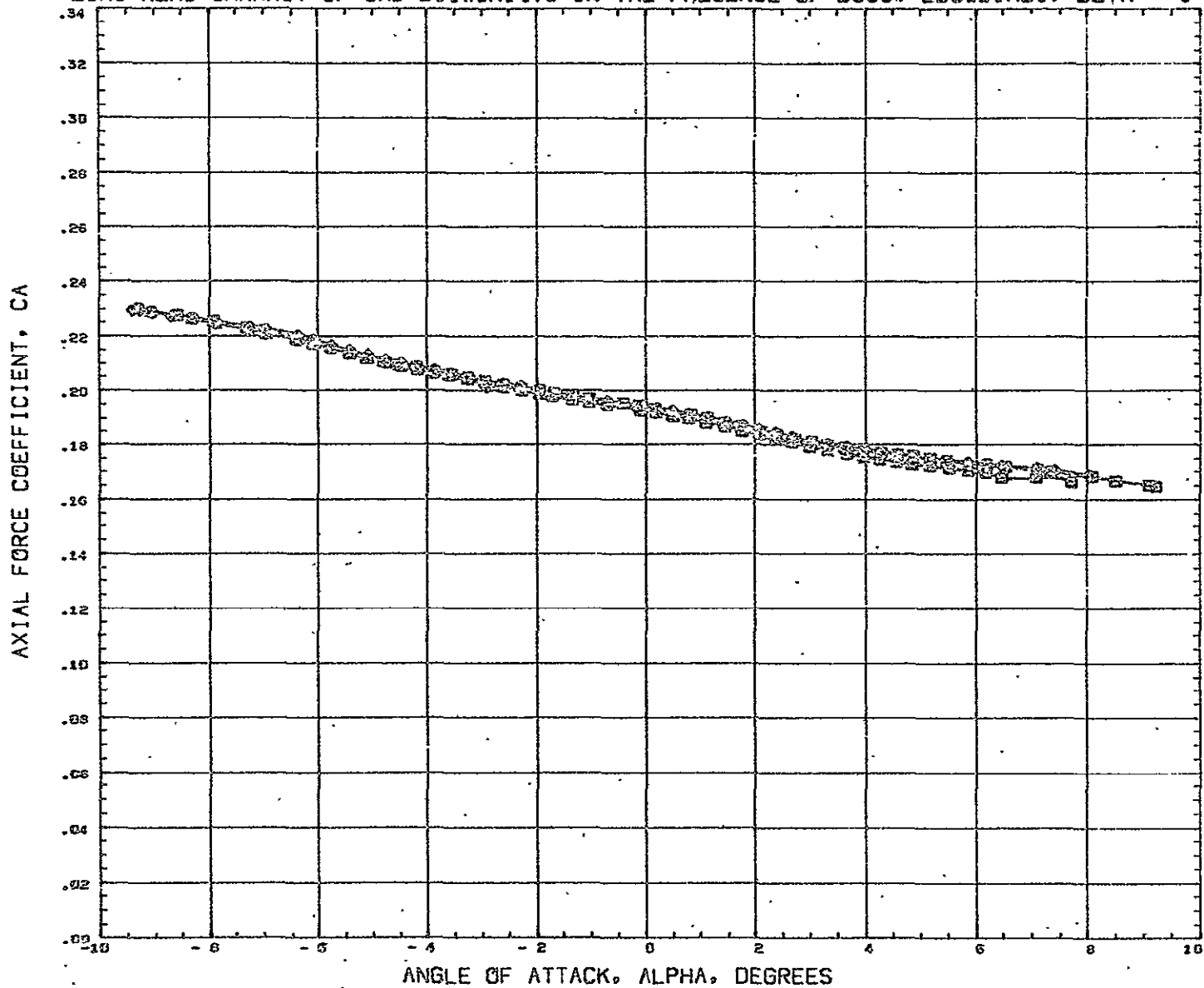


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	MACH	4.390
□	5.000	ALFB	0.000	BETB	0.000
◇	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3680	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



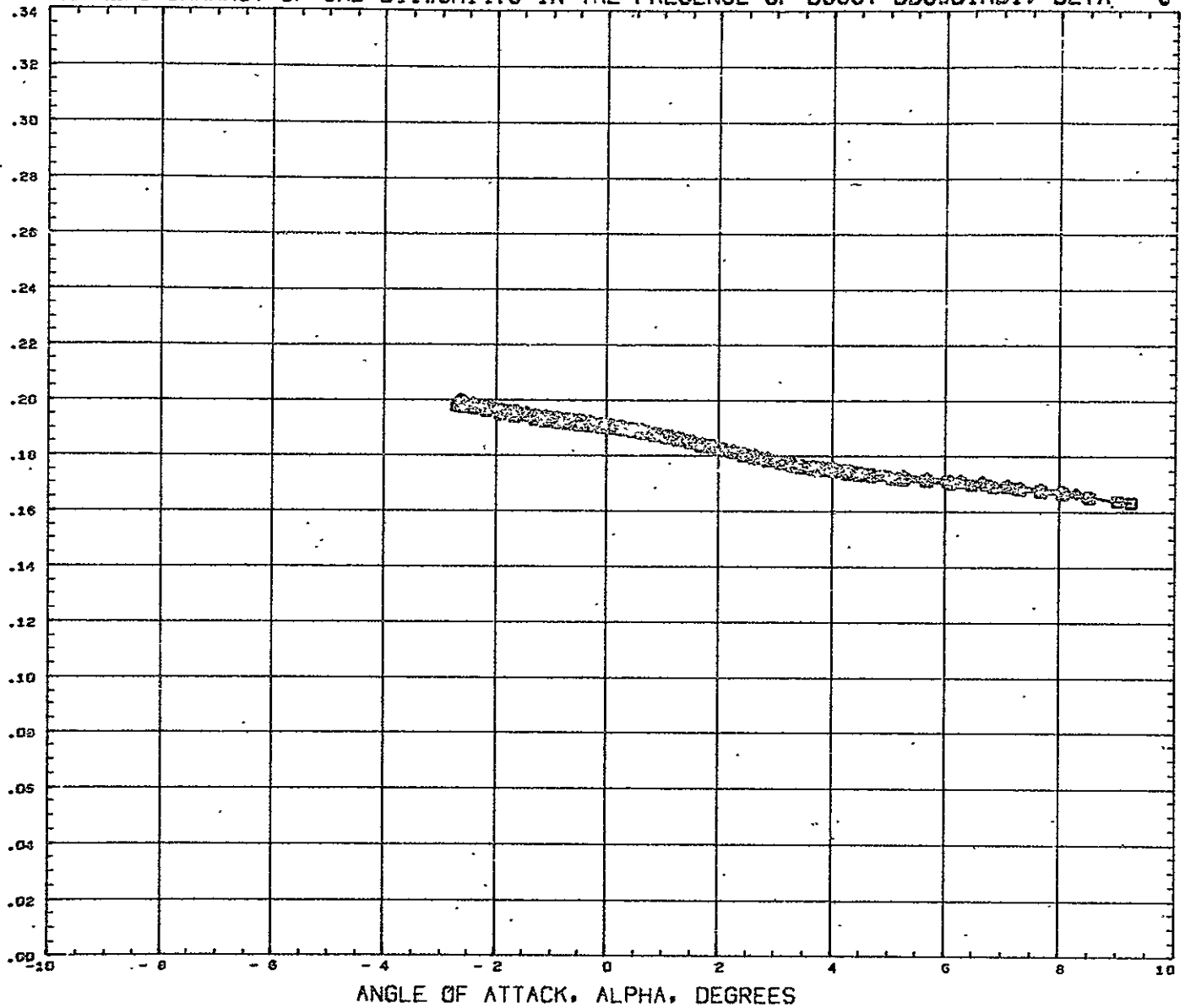
SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	MACH	4.390
□	8.000	ALPB	0.000	BETB	0.000
◇	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SB IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

AXIAL FORCE, COEFFICIENT, CA



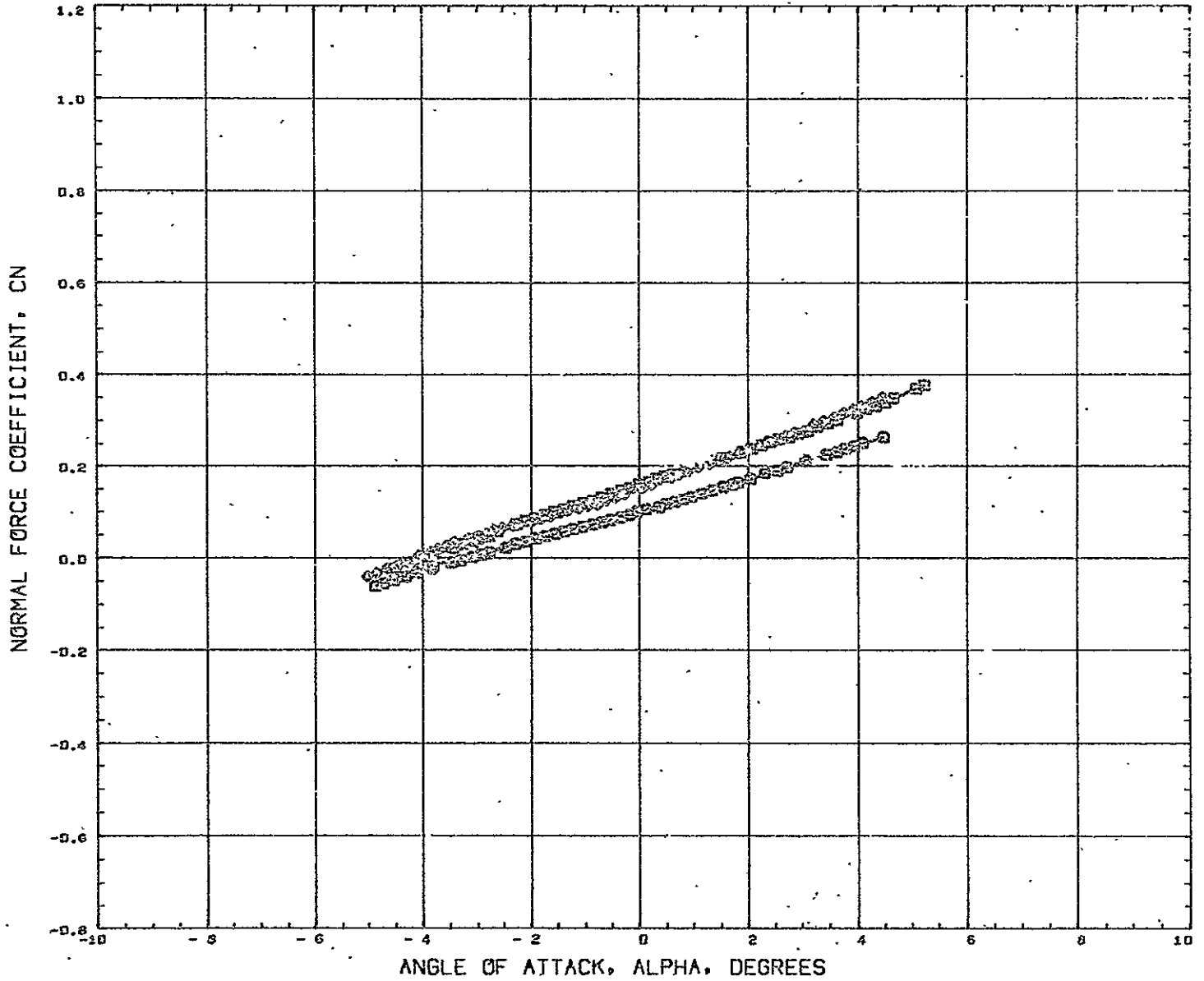
ANGLE OF ATTACK, ALPHA, DEGREES

SYMBOL	SEPPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	MACH	4.390
□	11.000	ALPB	0.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

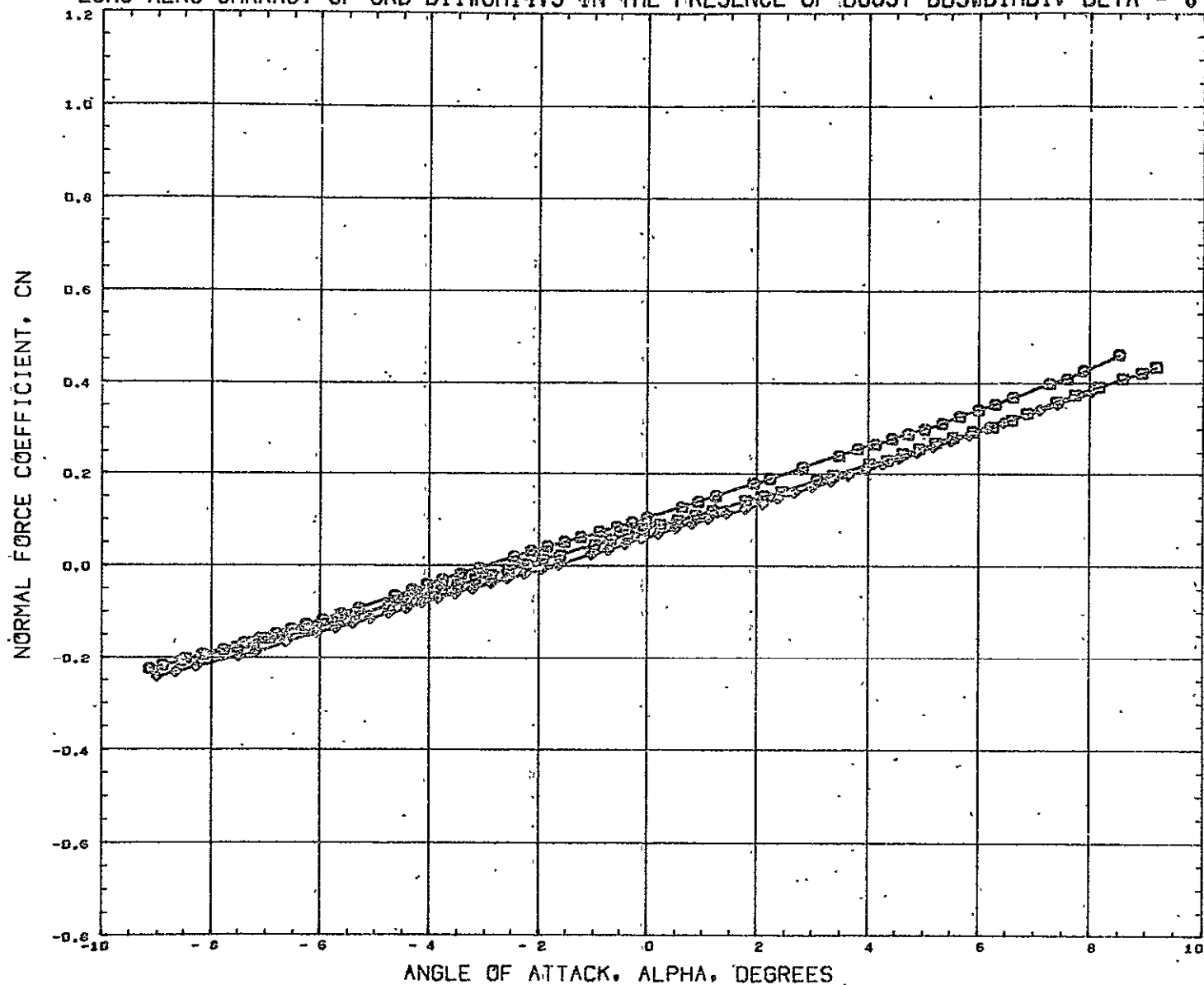


SYMBOL	SEFFOS	PARAMETRIC VALUES			
◇	1.000	BETA	0.000	HACH	4.390
□	2.000	ALPB	0.000	BETB	0.000
○	3.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

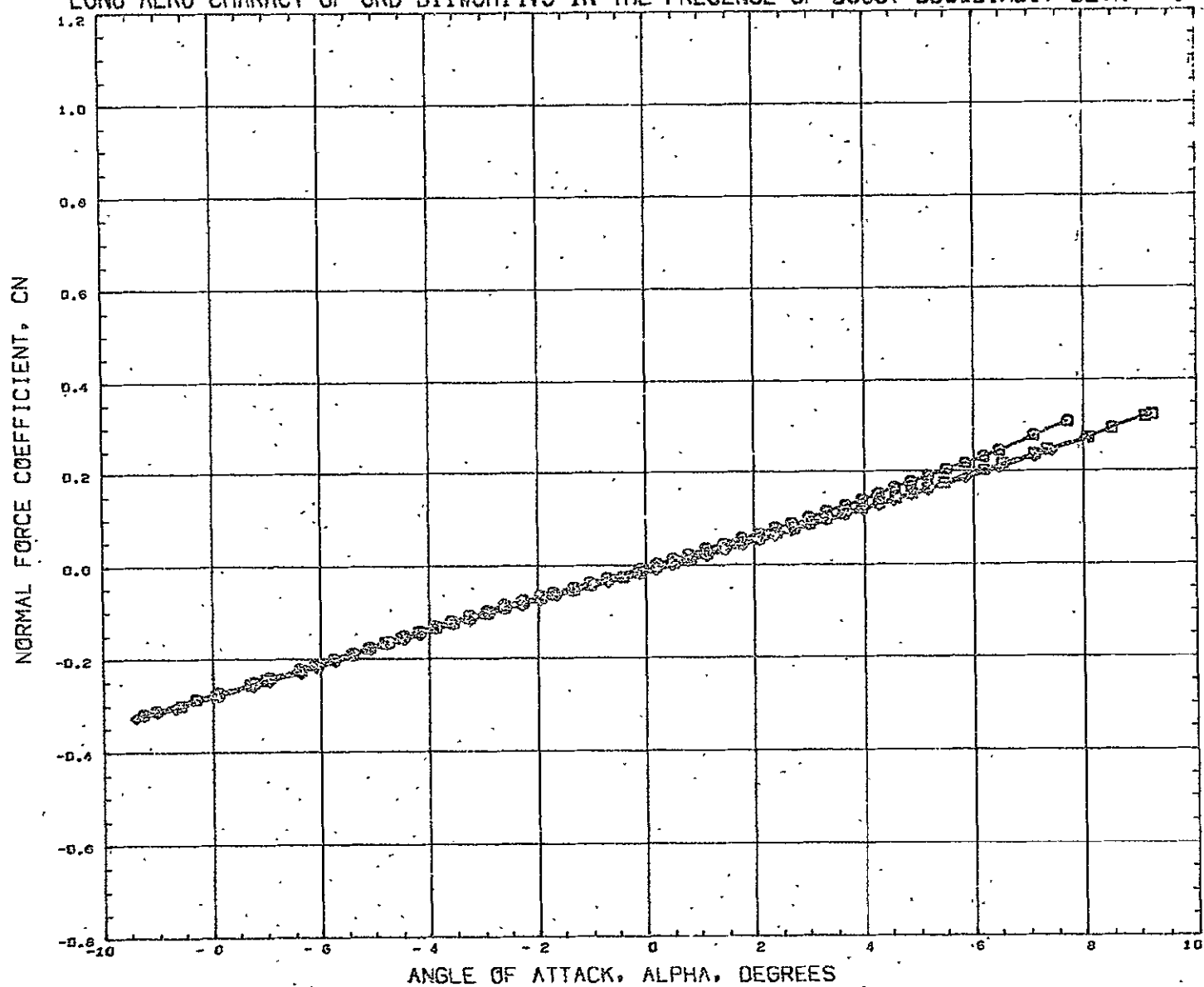


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	MACH	BETB
○	4.000	BETA	0.000	4.390	
□	5.000	ALFB	0.000	0.000	
◇	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRF	9.5680	IN
YHRF	0.0000	IN
ZHRF	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

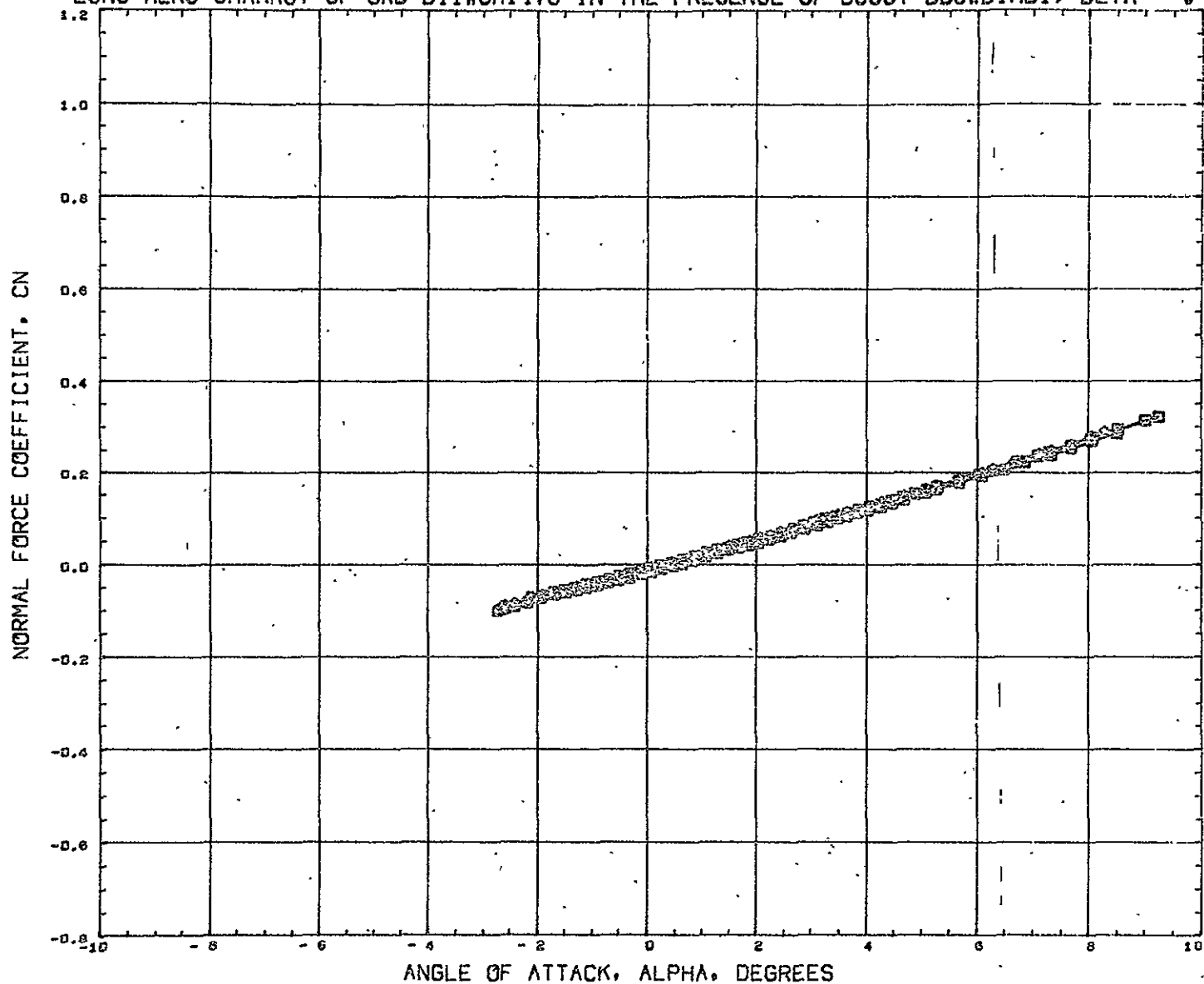


SYMBOL		SEFFOS	PARAMETRIC VALUES			
□		7.000	BETA	0.000	MACH	4.390
□		8.000	ALPB	0.000	BETB	0.000
◇		9.000				

REFERENCE INFORMATION		
REFS	20.6640	SO IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

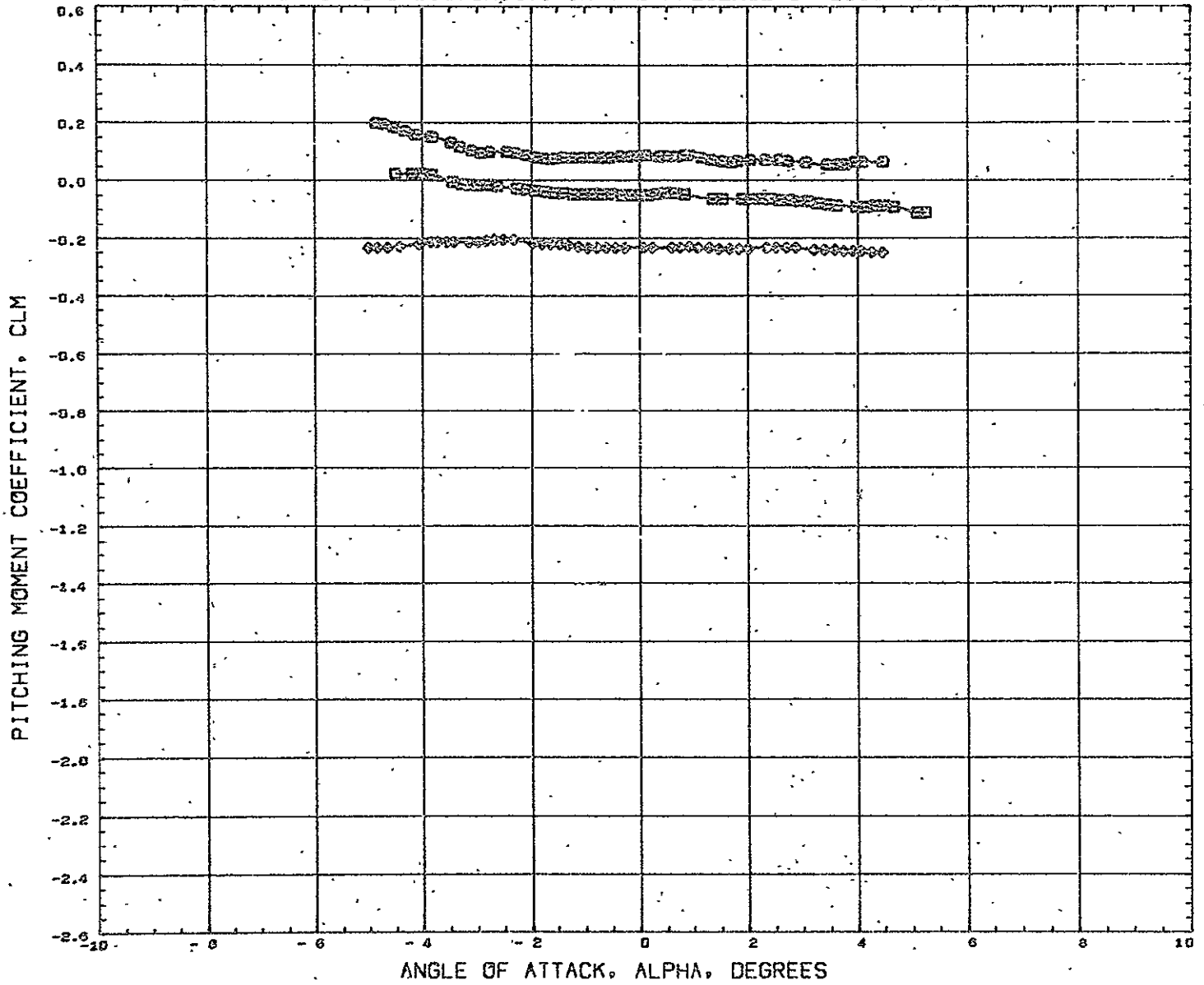


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	MACH	4.390
□	11.000	ALPB	0.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

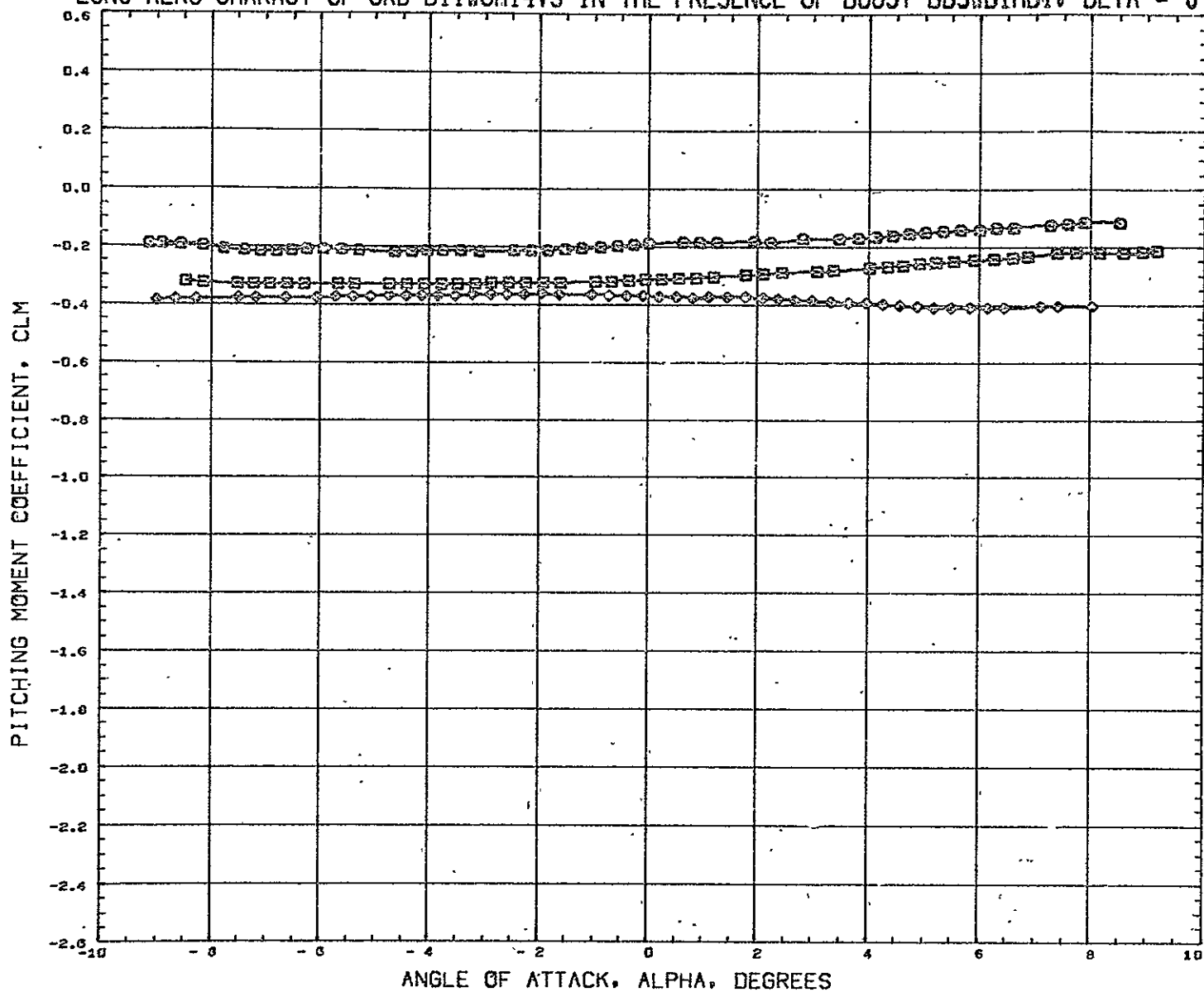
REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
□	SEFFOS 1.000	BETA 0.000	MACH 4.390			REFS 20.6610	SQ	IN
◇	SEFFOS 2.000	ALFB 0.000	BETB 0.000			REFL 1.8540	IN	
○	SEFFOS 3.000					REFB 12.0000	IN	
						XMRP 9.3880	IN	
						YMRP 0.0000	IN	
						ZMRP 1.4600	IN	
						SCALE 0.0088		
REFERENCE FILE		.0000						

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

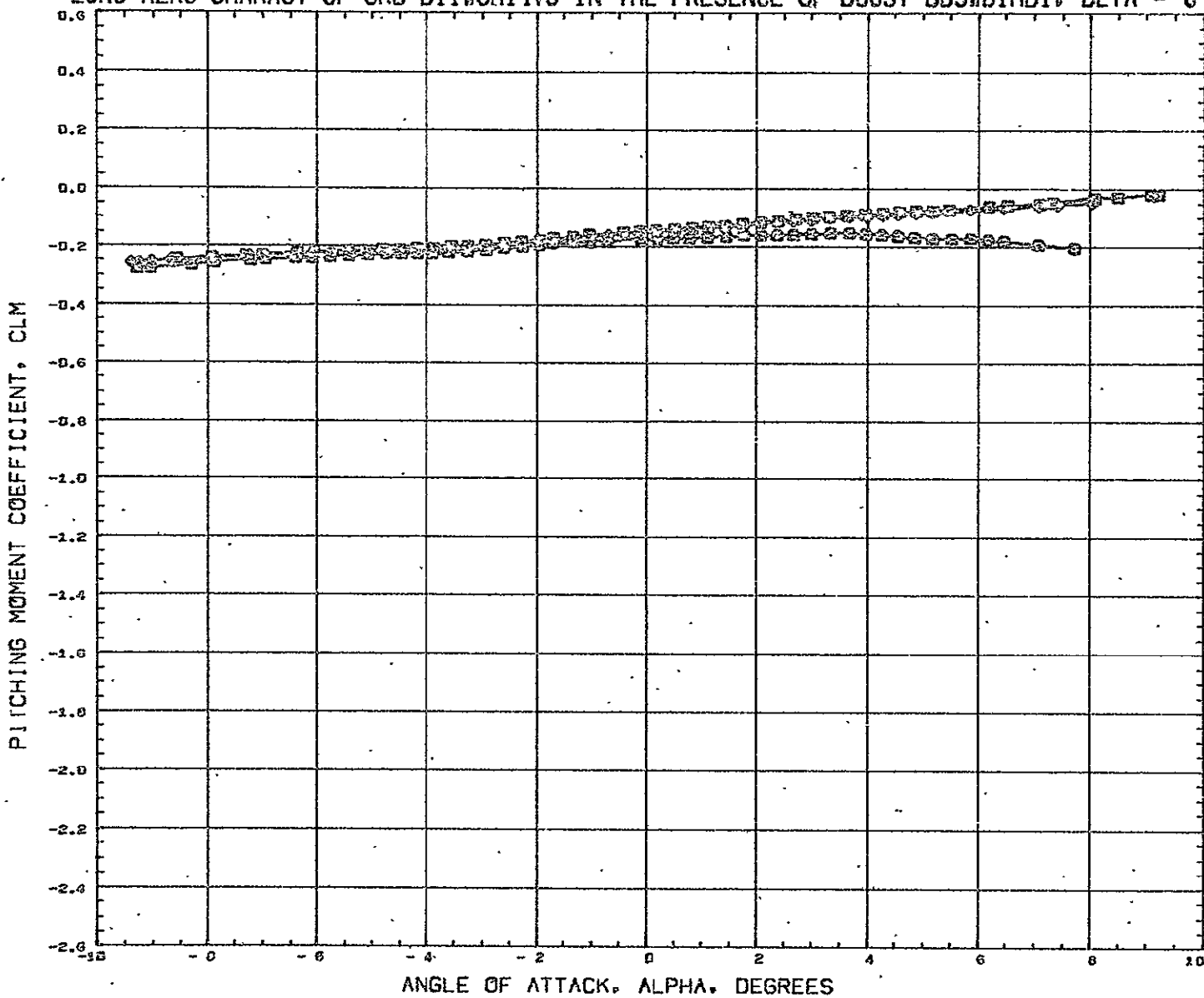


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	MACH	4.390
□	5.000	ALFB	0.000	BETB	0.000
◇	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4500	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

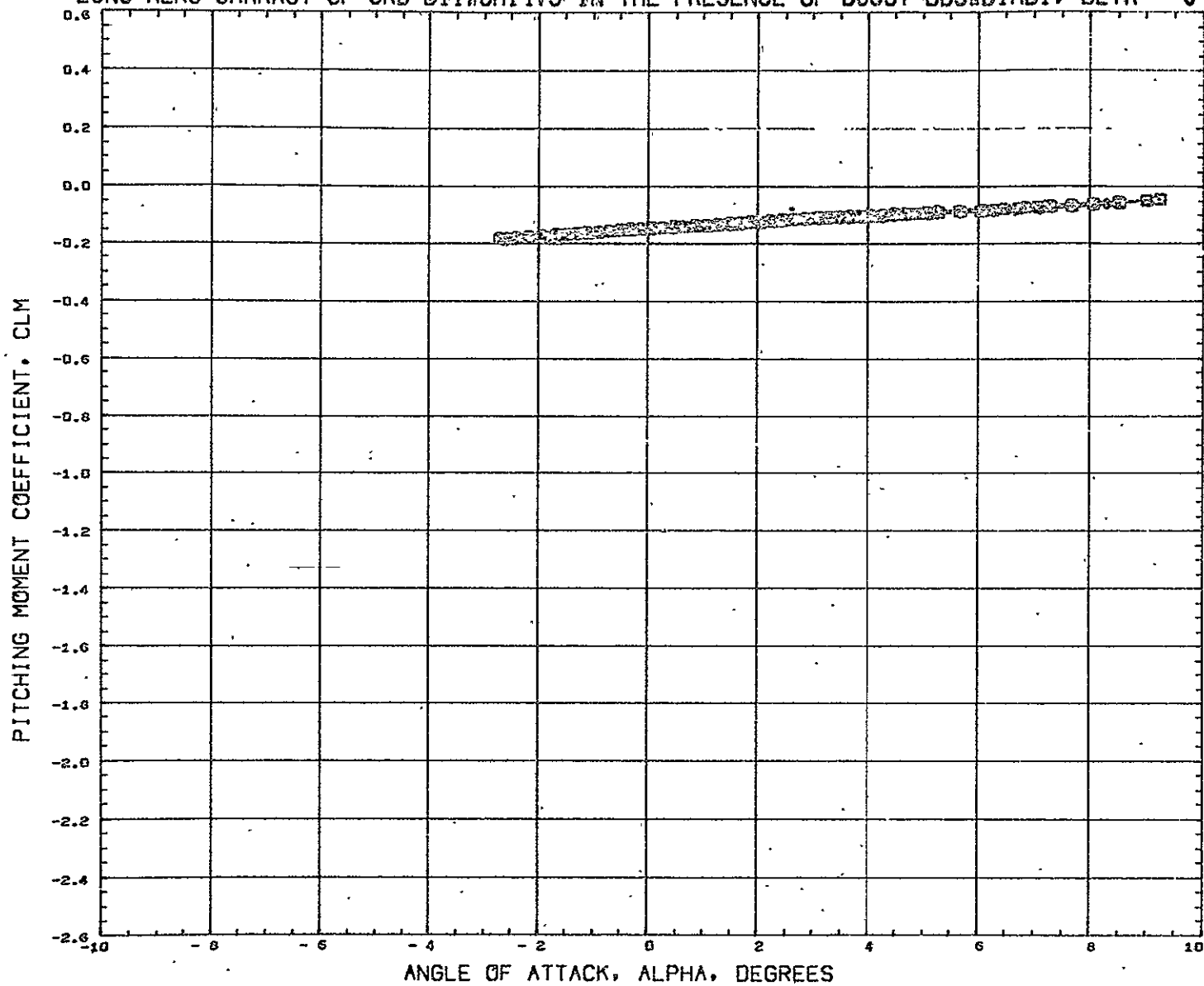


YMBOL	SEFFOS	BETA	PARAMETRIC VALUES	HACH	BETB
○	7.000	0.000	0.000	4.390	0.000
□	8.000	0.000	0.000	0.000	0.000
◇	9.000	0.000	0.000	0.000	0.000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	HACH	4.390
□	11.000	ALPB	0.000	BETB	0.000
◇	12.000				

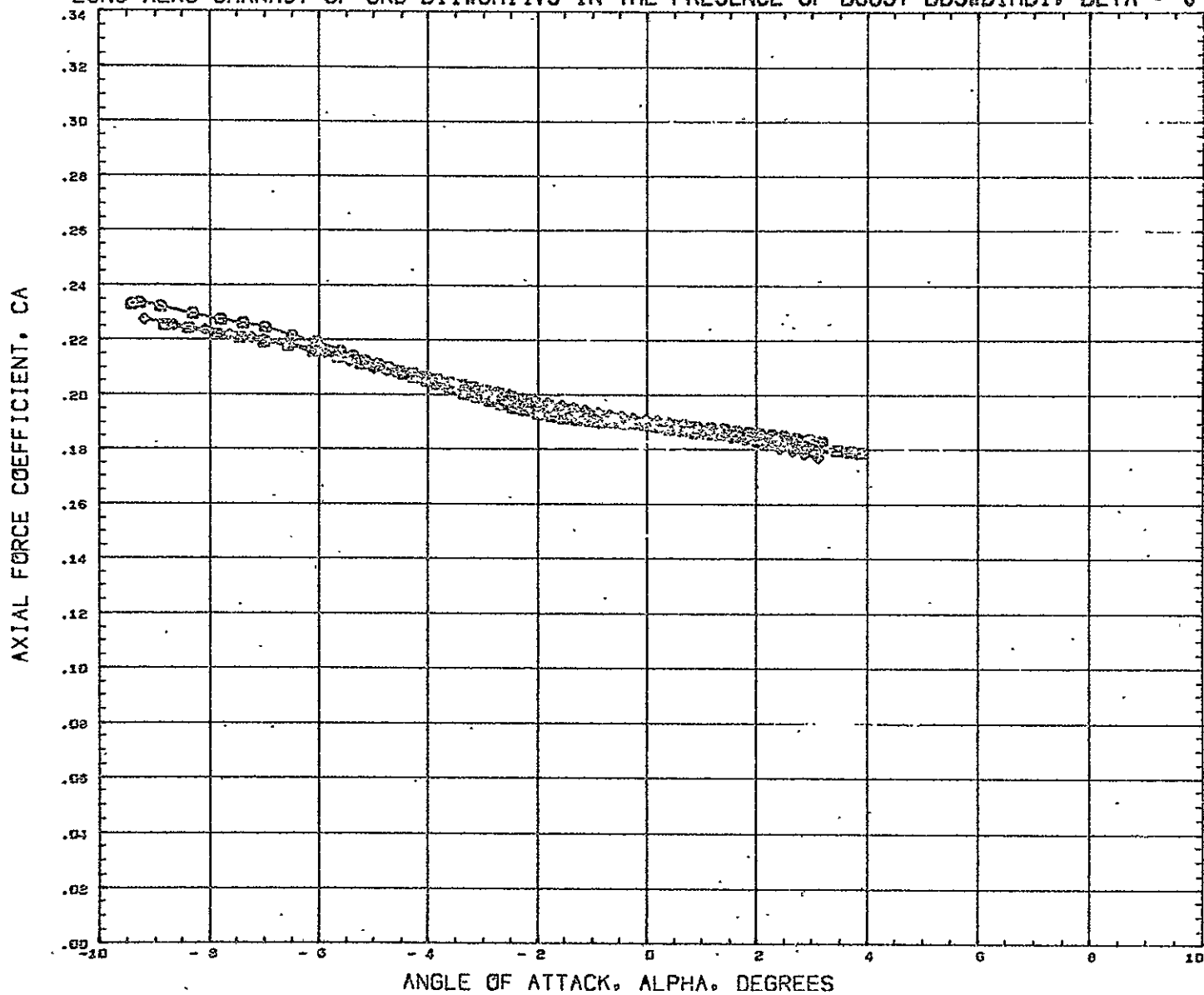
REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

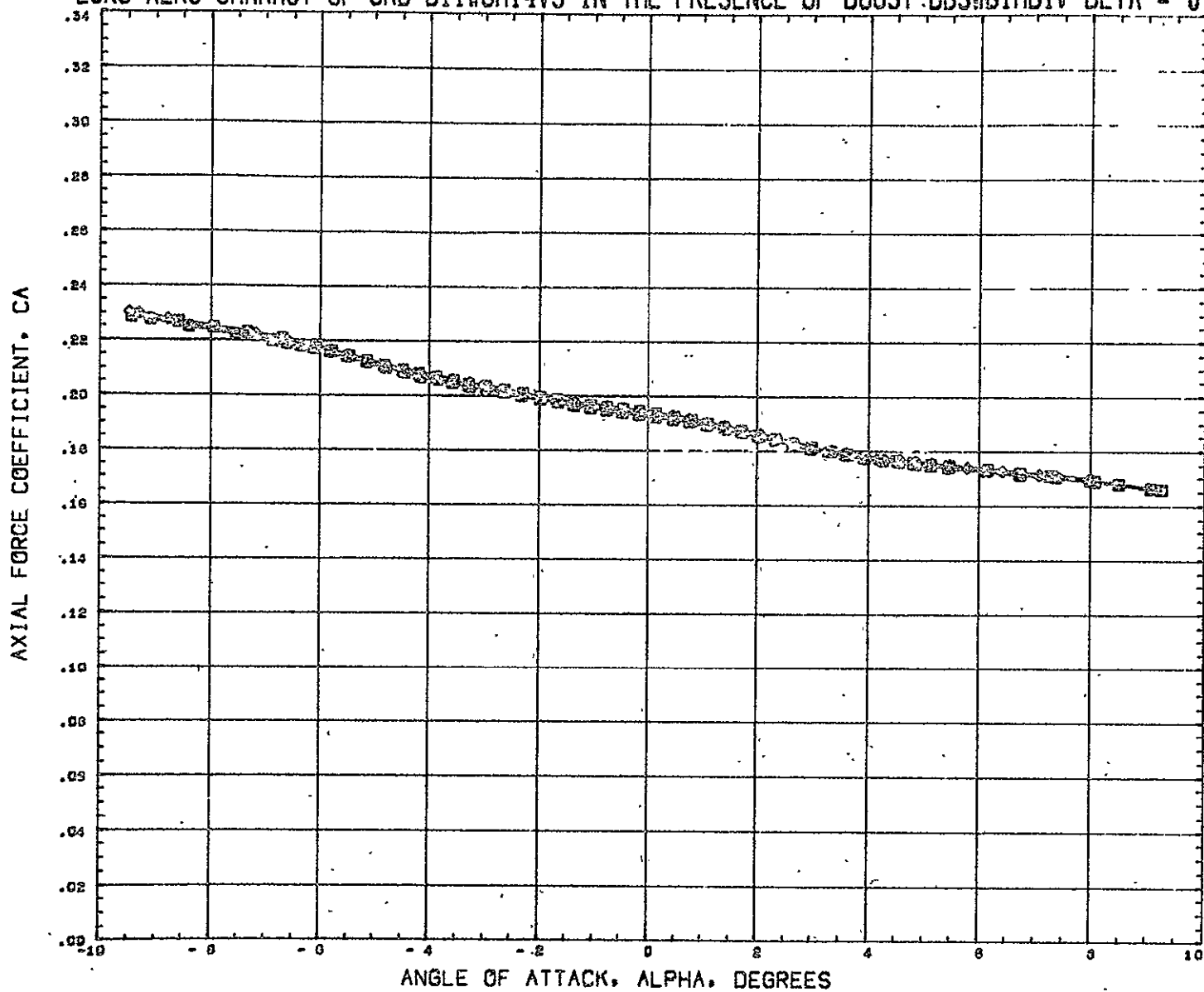


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	MACH	4.390
□	5.000	ALPB	- 5.000	BETS	0.000
◇	6.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRF	9.3880	IN
YHRF	0.0000	IN
ZHRF	1.4600	IN
SCALE	0.0088	

REFERENCE FILE . . .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

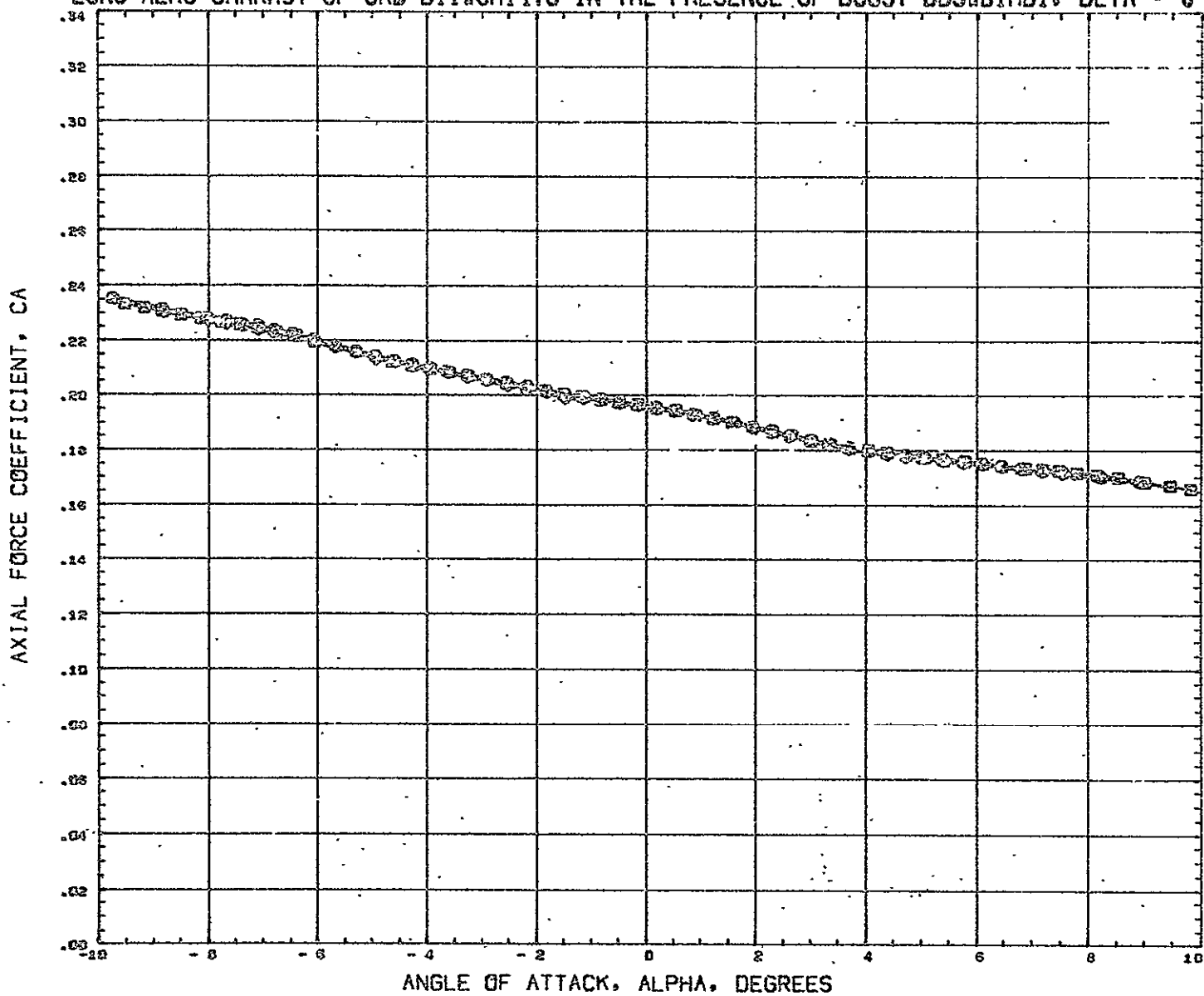


SYMBOL	SEPP03	PARAMETRIC VALUES			
○	7.000	BETA	0.000	MACH	4.390
□	8.000	ALPB	- 5.000	BETS	0.000
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	90 IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4800	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

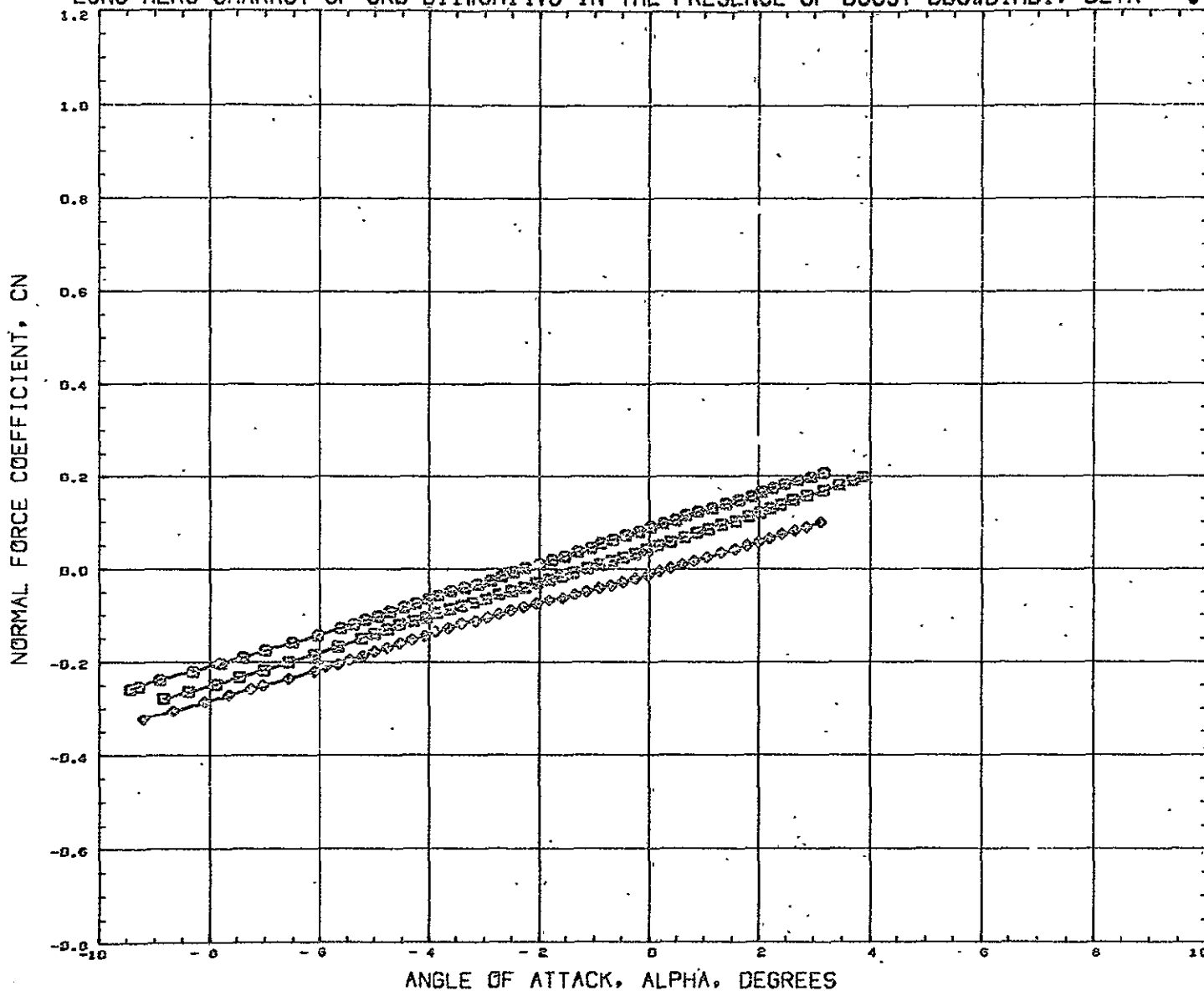


SYMBOL	SEPP03	PARAMETRIC VALUES			
□	10.000	BETA	0.000	MACH	4.390
□	11.000	ALPB	- 5.000	ESTB	0.000
◇	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

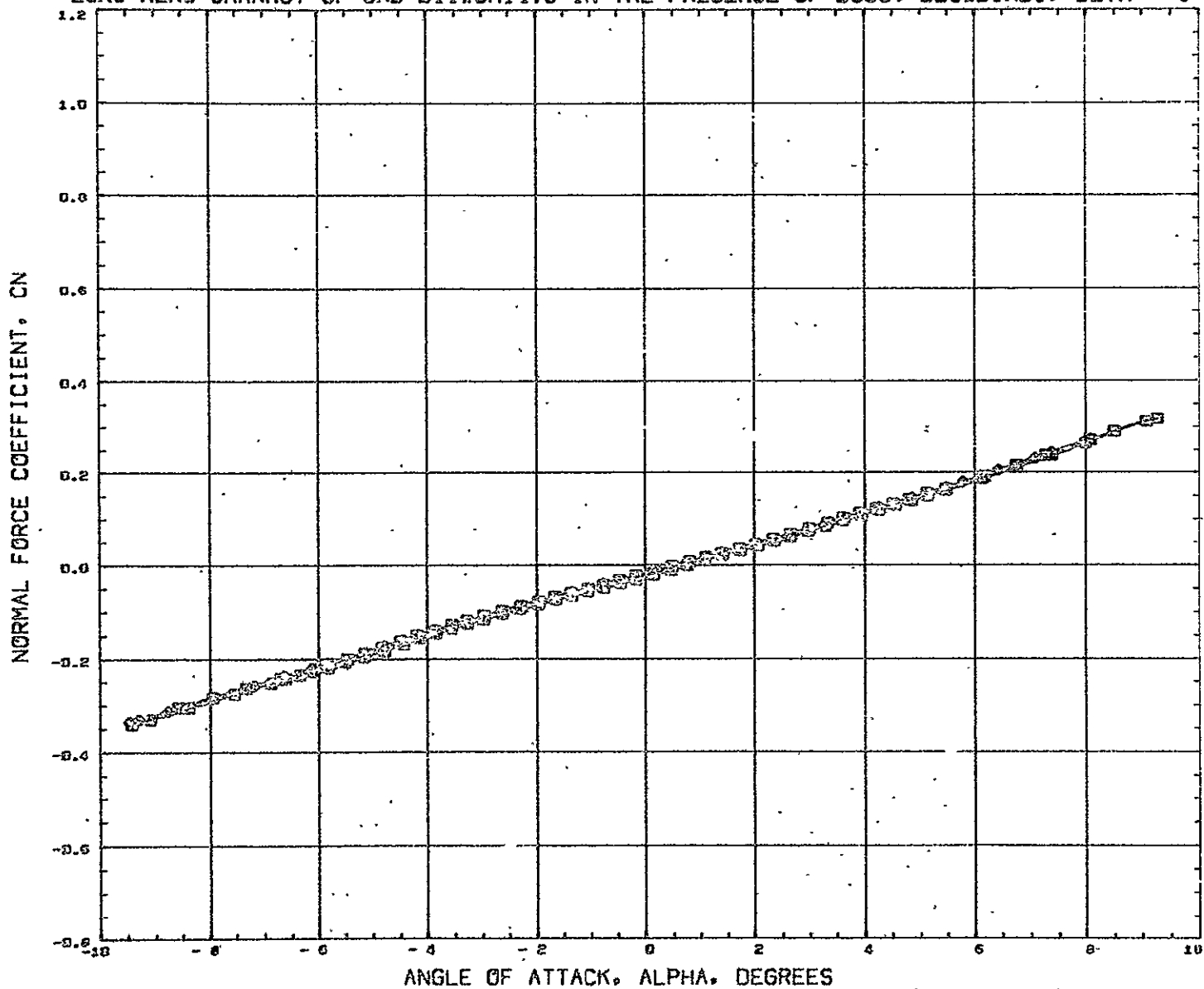


SYMBOL	SEPP05	PARAMETRIC VALUES			
○	4.000	BETA	0.000	MACH	4.390
□	5.000	ALPB	- 5.000	BETB	0.000
◇	6.000				

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

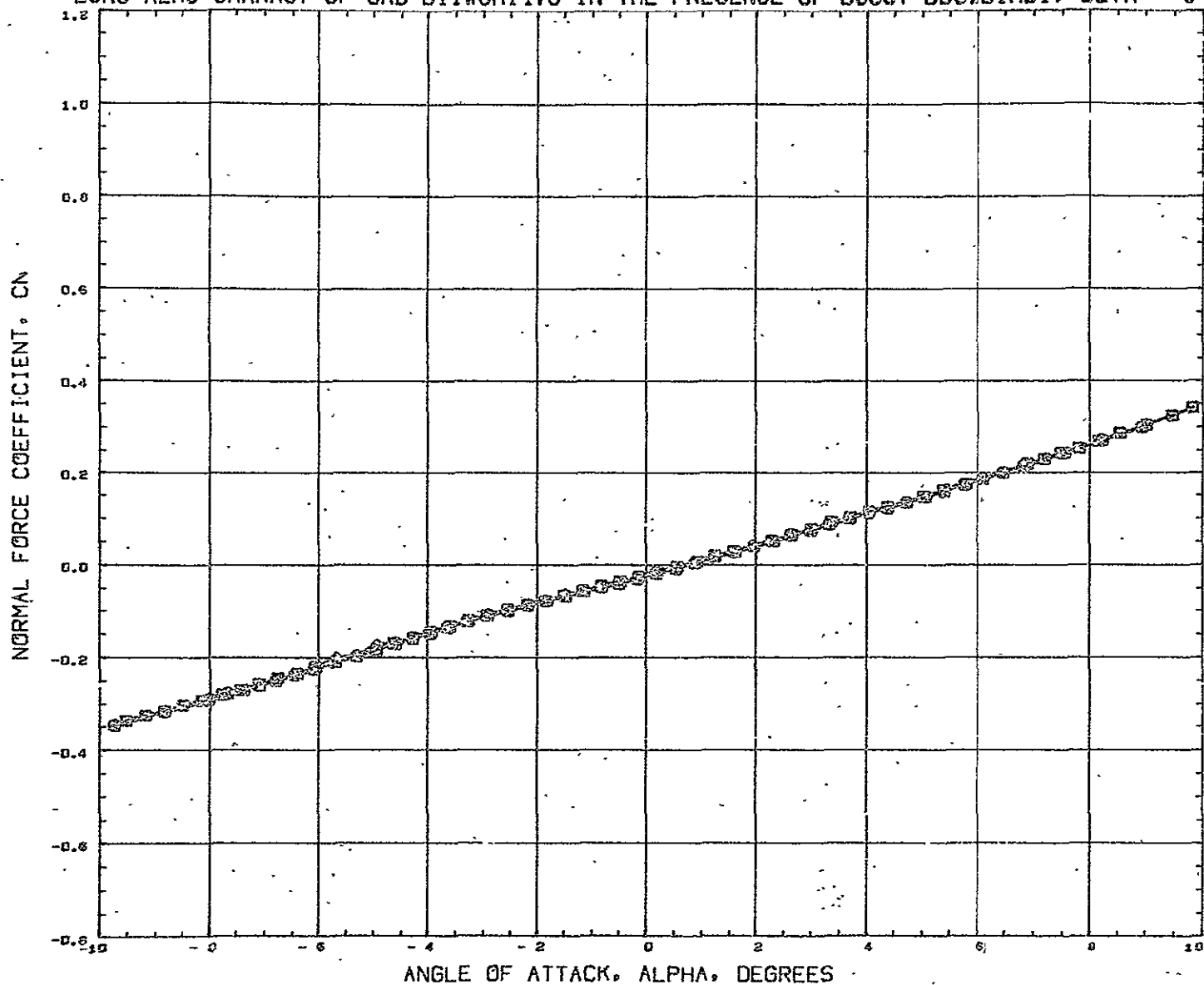


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	HACII	4.390
◻	0.000	ALPB	-5.000	BETB	0.000
◇	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

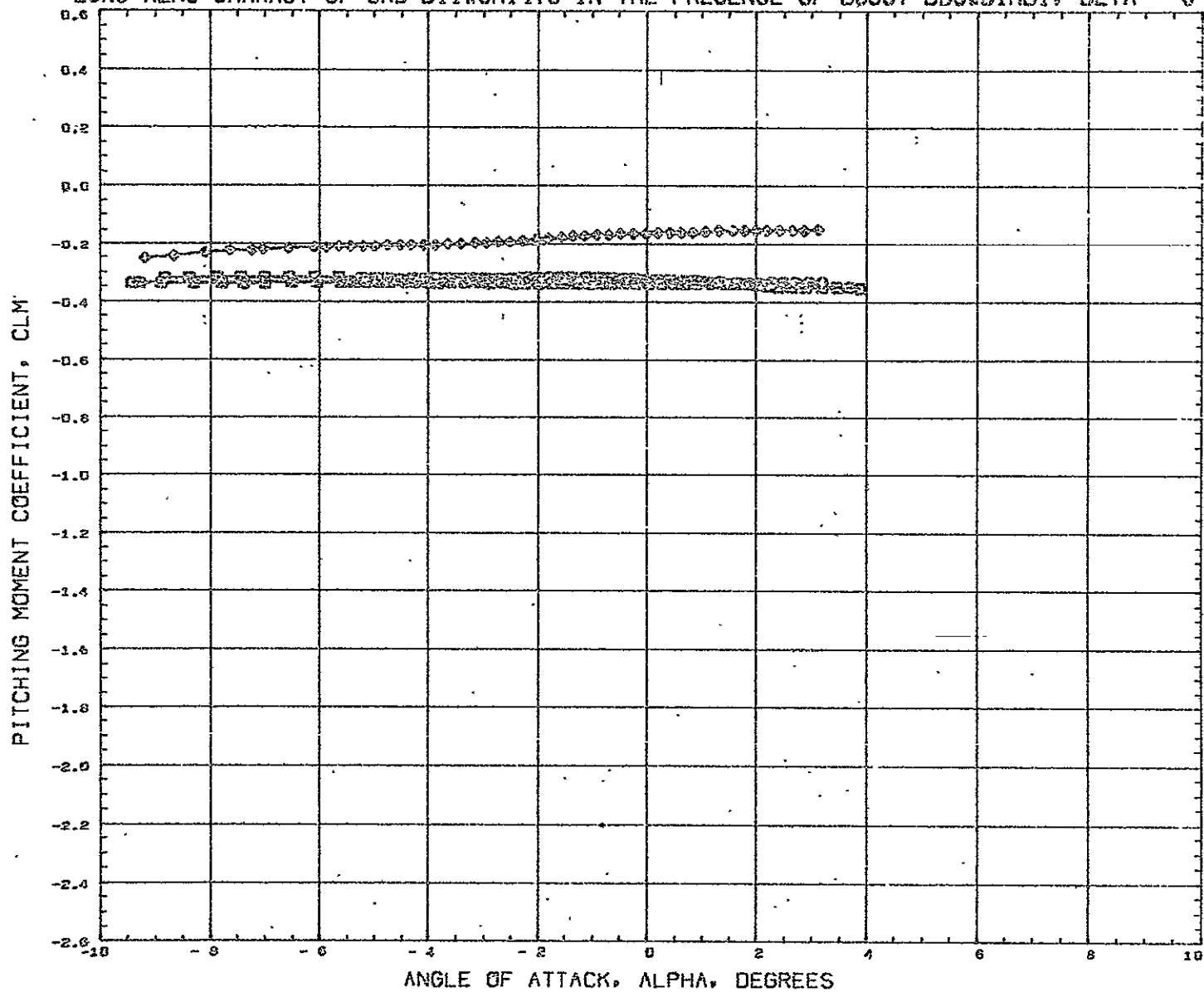
REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
○	10.000	BETA	0.000	MACH	4.390	REFS	20.6840	SQ IN
□	11.000	ALPB	- 5.000	BETB	0.000	REFL	1.8540	IN
◇	12.000					REFB	12.0000	IN
						XMRP	9.3880	IN
						YMRP	0.0000	IN
						ZMRP	1.4600	IN
						SCALE	0.0088	
REFERENCE FILE		.0000						

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

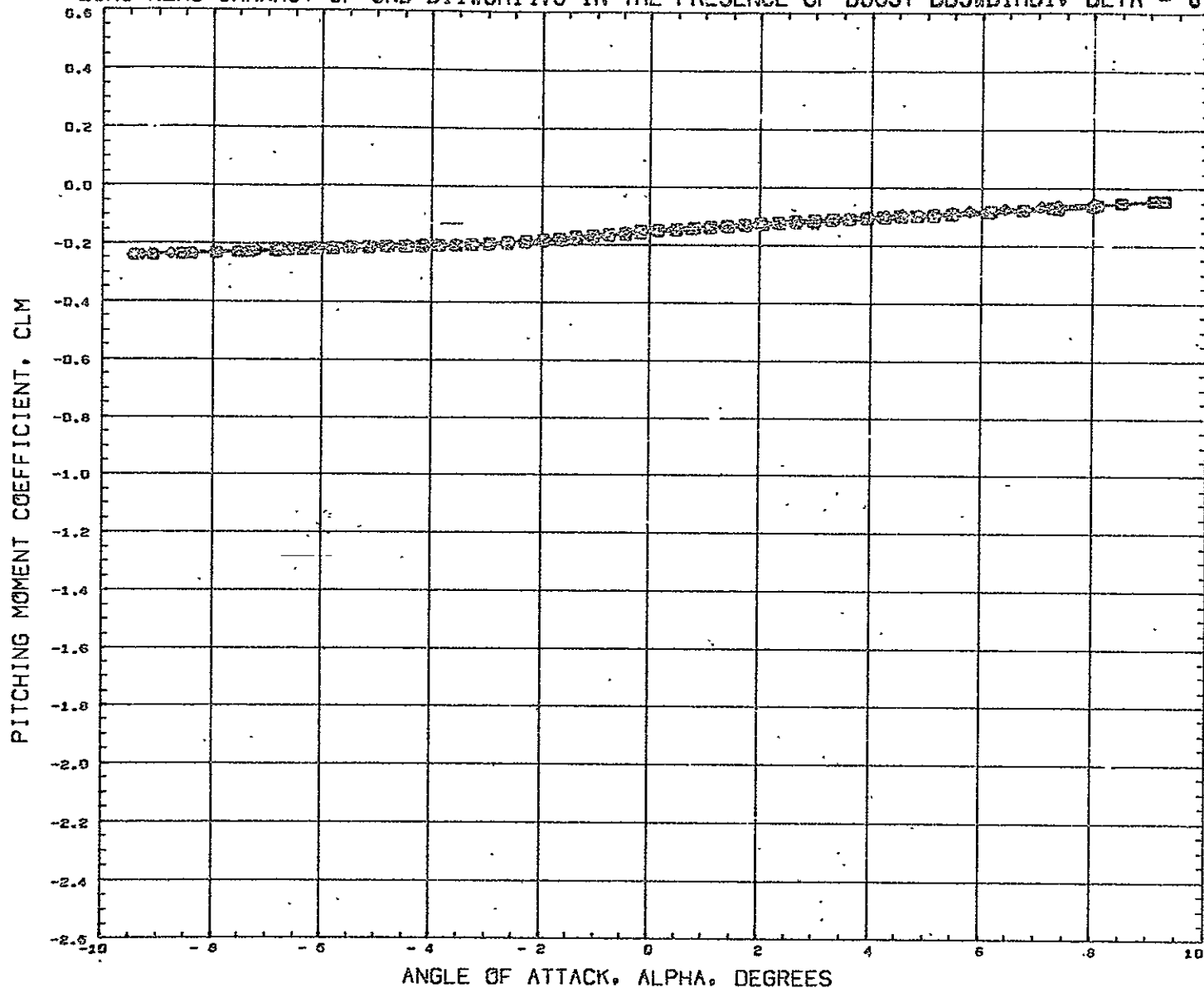


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	MACH	4.390
□	5.000	ALFB	- 5.000	BETR	0.000
◇	6.000				

REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

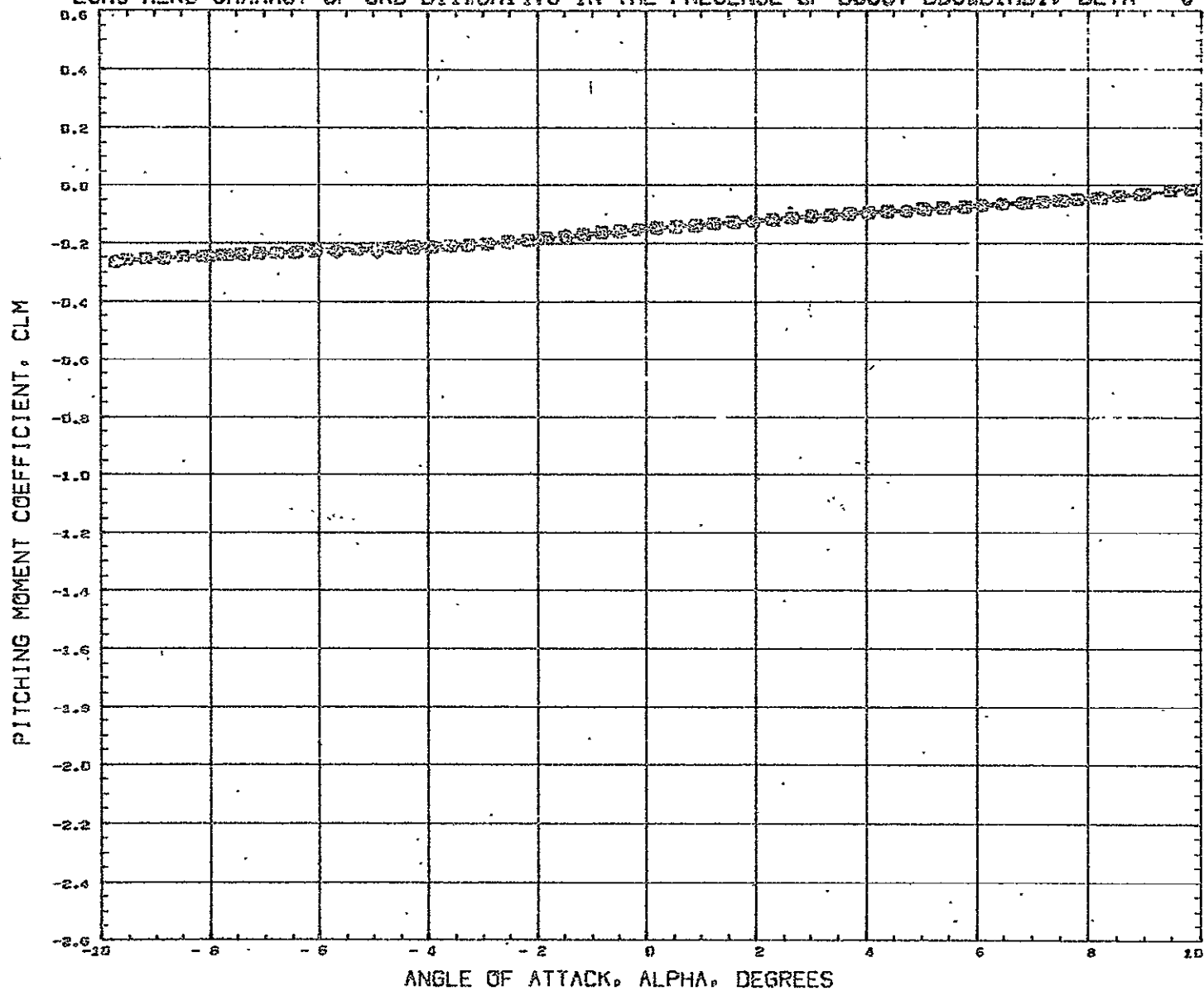


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	MACH	4.390
◇	8.000	ALPB	- 5.000	BETS	0.000
○	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRF	9.3680	IN
YNRF	0.0000	IN
ZNRF	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



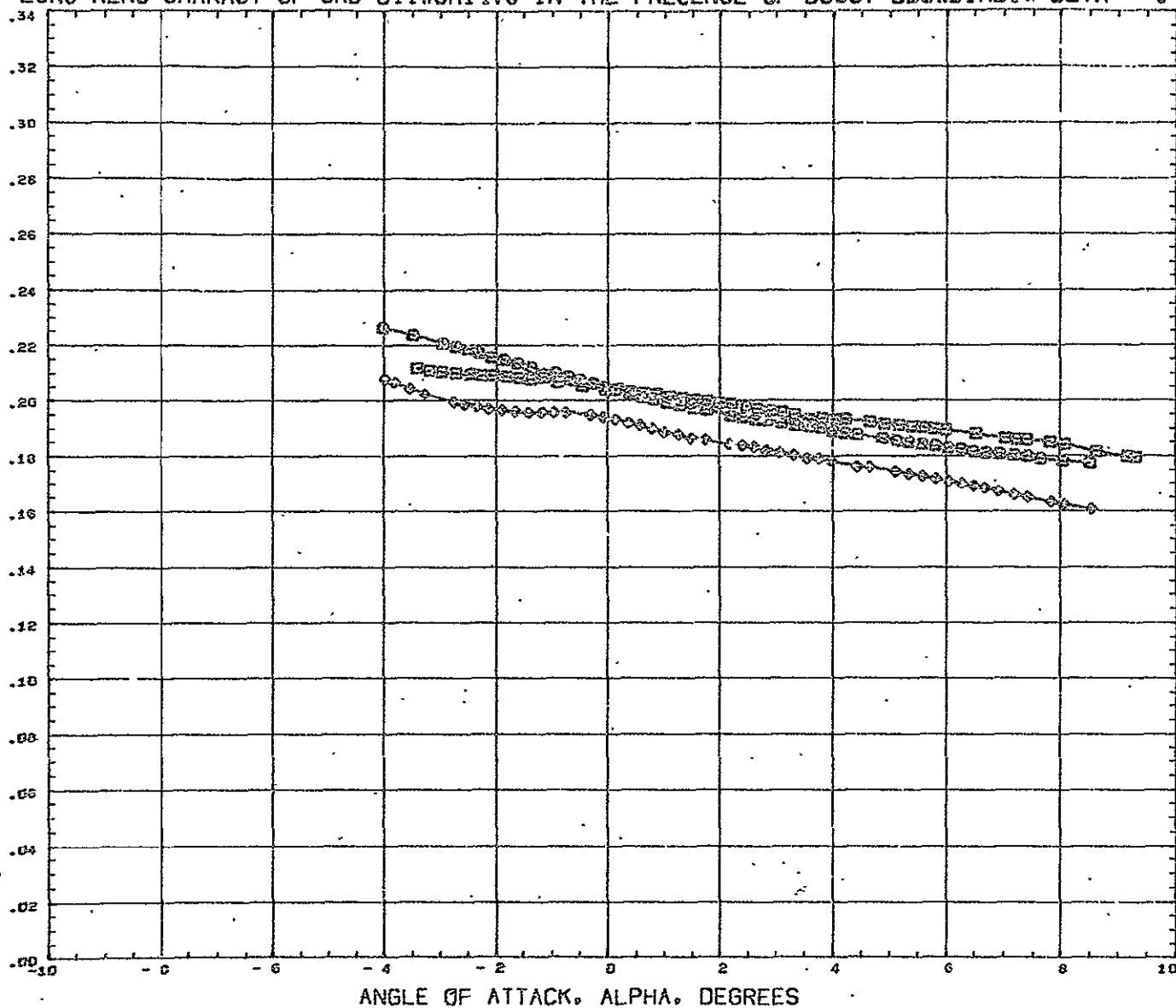
SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	MACH	4.390
□	11.000	ALFB	- 5.000	BETS	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

AXIAL FORCE COEFFICIENT, CA



ANGLE OF ATTACK, ALPHA, DEGREES

SYMBOL	SEPP05	BETA	PARAMETRIC VALUES	HACH	4.390
□	4.000	BETA	0.000	HACH	4.390
◇	5.000	ALPB	5.000	BETB	0.000
○	6.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

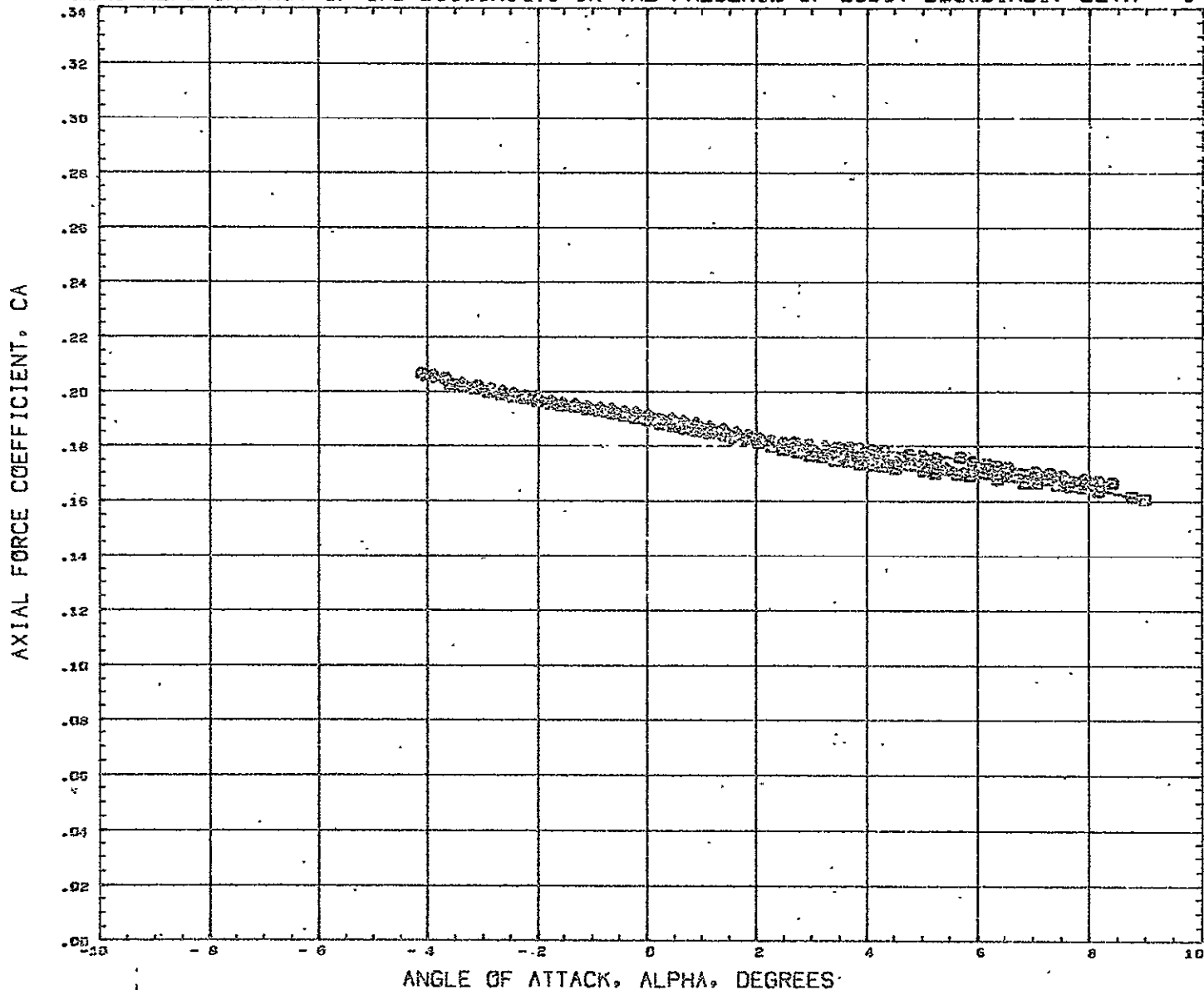
REFERENCE FILE .0000

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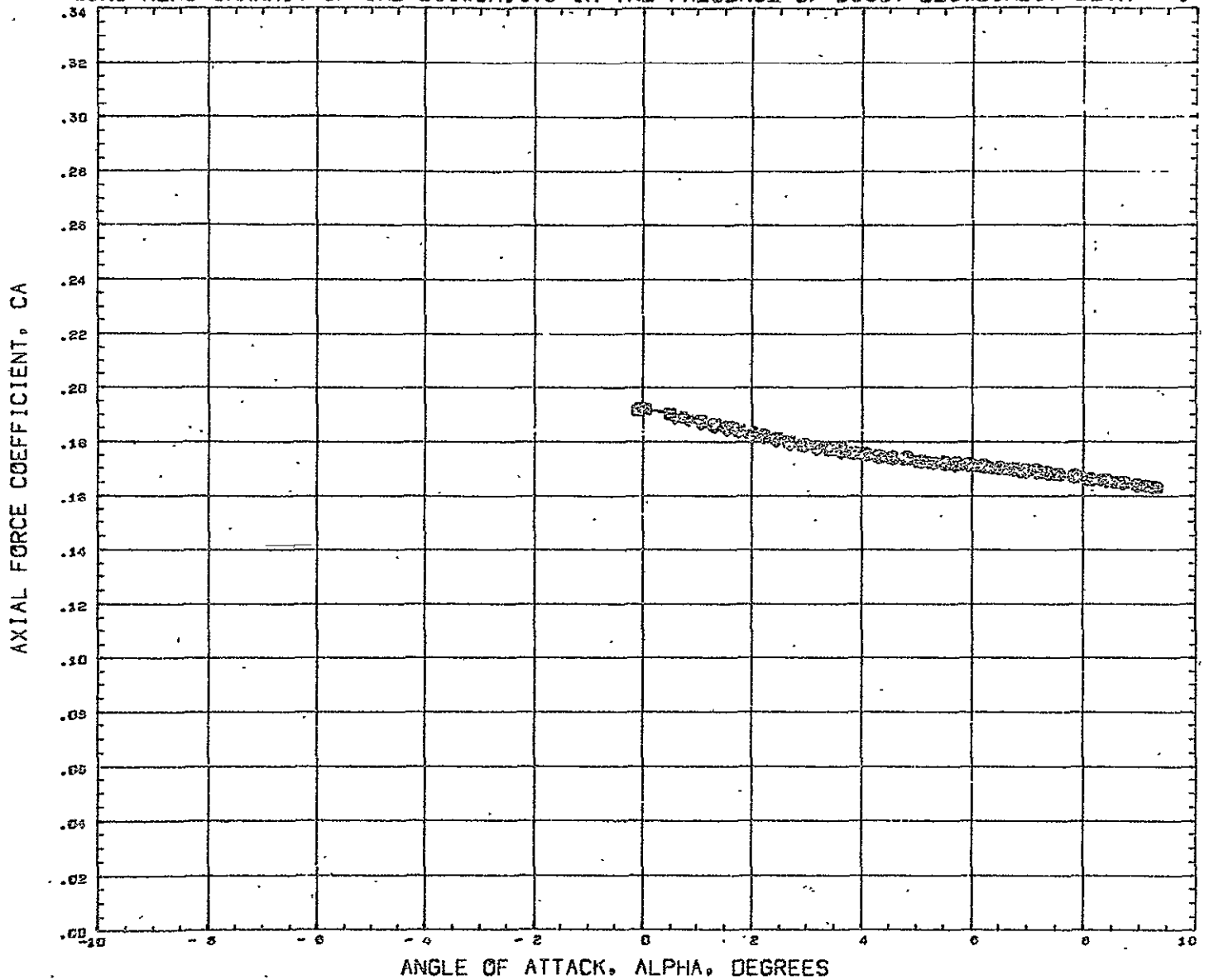
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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	7.000	BETA	0.000	MACH	4.390	REFS	20.6640	SQ IN
□	8.000	ALPB	5.000	BETB	0.000	REFL	1.8540	IN
◇	9.000					REFB	12.0000	IN
						XHRP	9.3080	IN
						YHRP	0.0000	IN
						ZHRP	1.4600	IN
						SCALE	0.0088	
REFERENCE FILE		.0000						

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0



SYMBOL	SEPP03	PARAMETRIC VALUES			
□	10.000	BETA	0.000	MACH	4.390
□	11.000	ALPB	5.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	59 IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

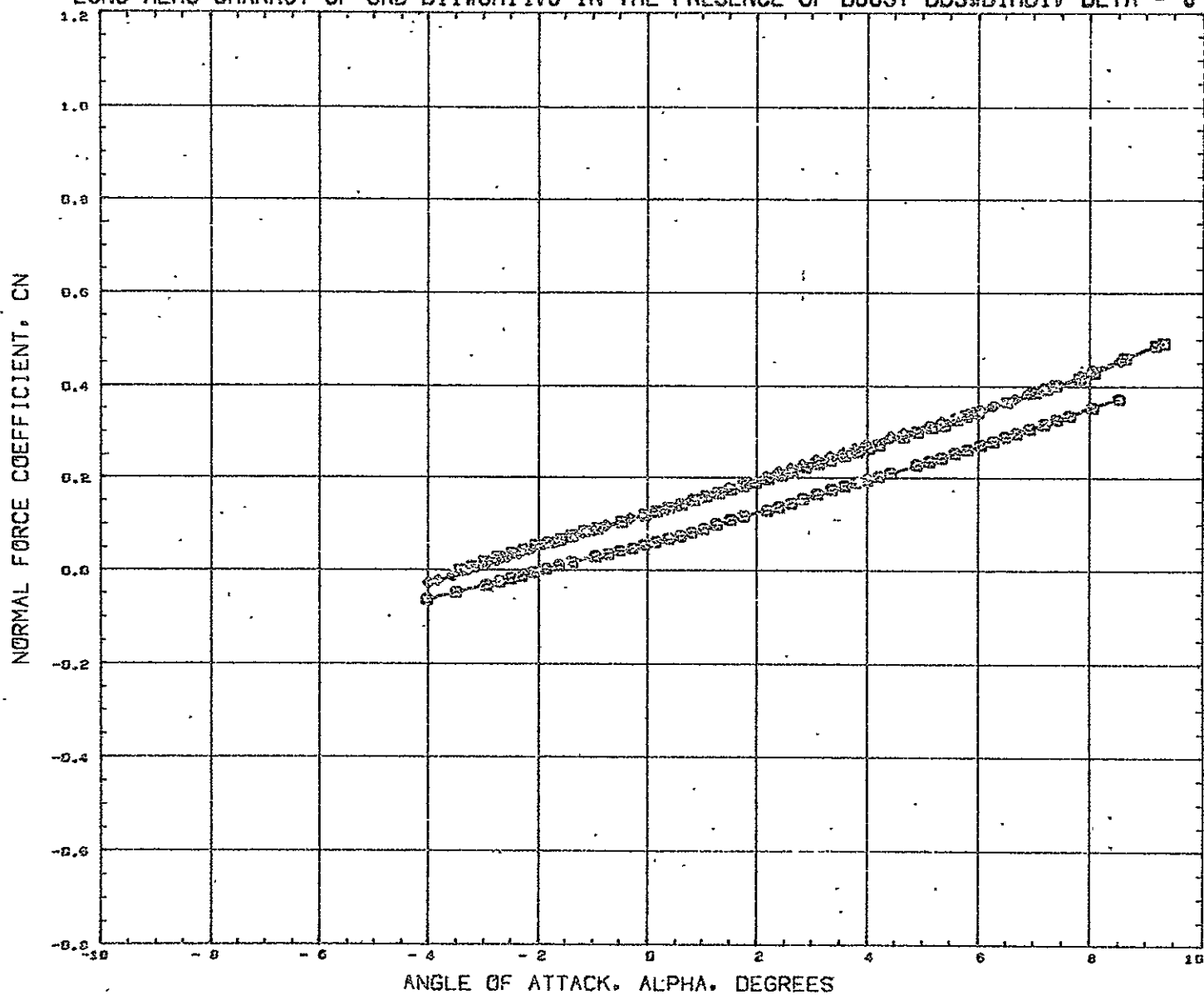
REFERENCE FILE .0000

MSC S-28 ORBITER B11W6H14V5 NEAR BB3WB1HB1

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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

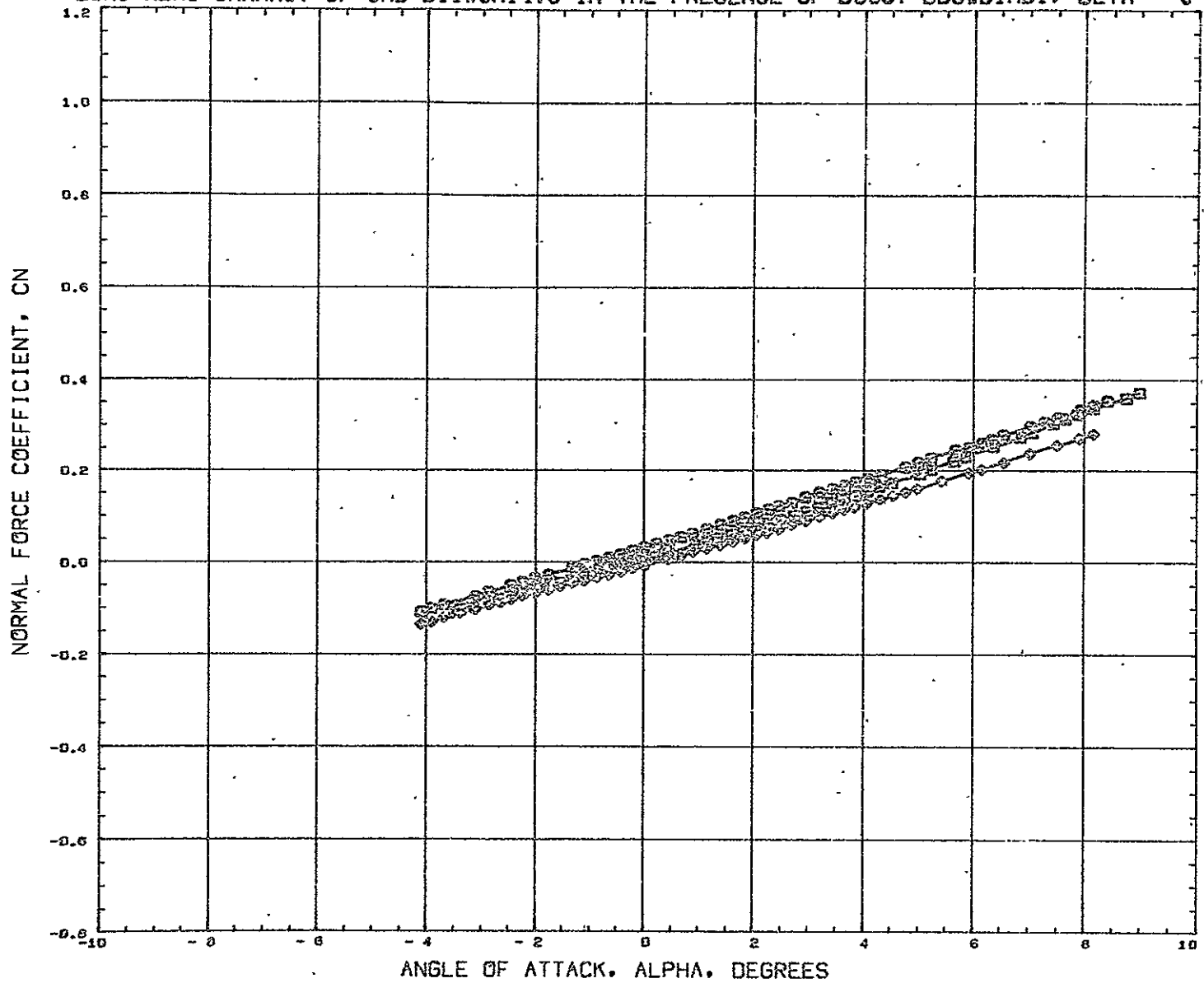


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	MACH	4.390
□	5.000	ALPB	5.000	BETB	0.000
◇	6.000				

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REPL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0990

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

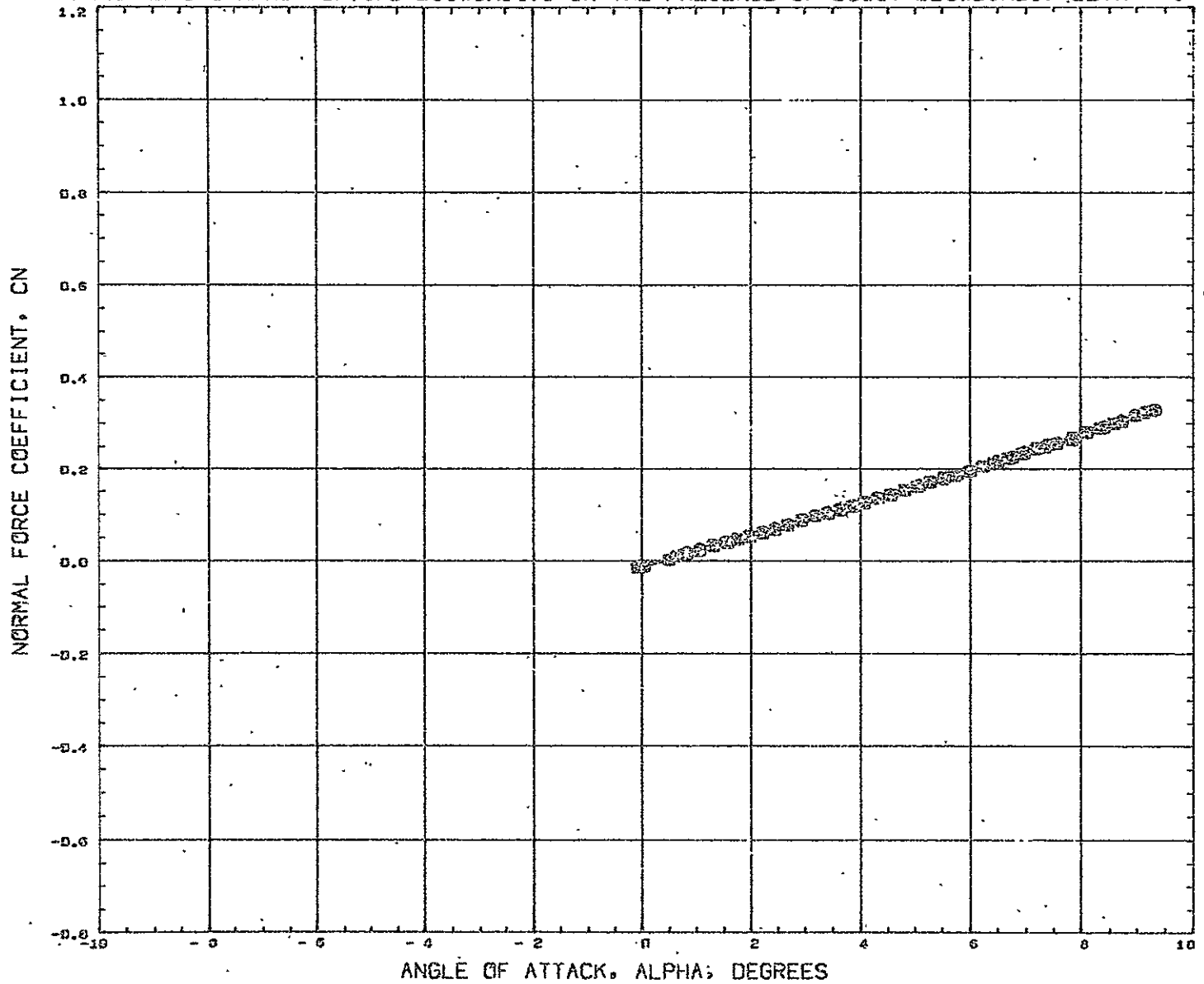


SYMBOL	SEFFOS	BETA	ALPB	PARAMETRIC VALUES	MACH	BETB
□	7.000	0.000	5.000	4.390	0.000	
□	8.000	0.000	5.000	4.390	0.000	
◇	9.000	0.000	5.000	4.390	0.000	

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0

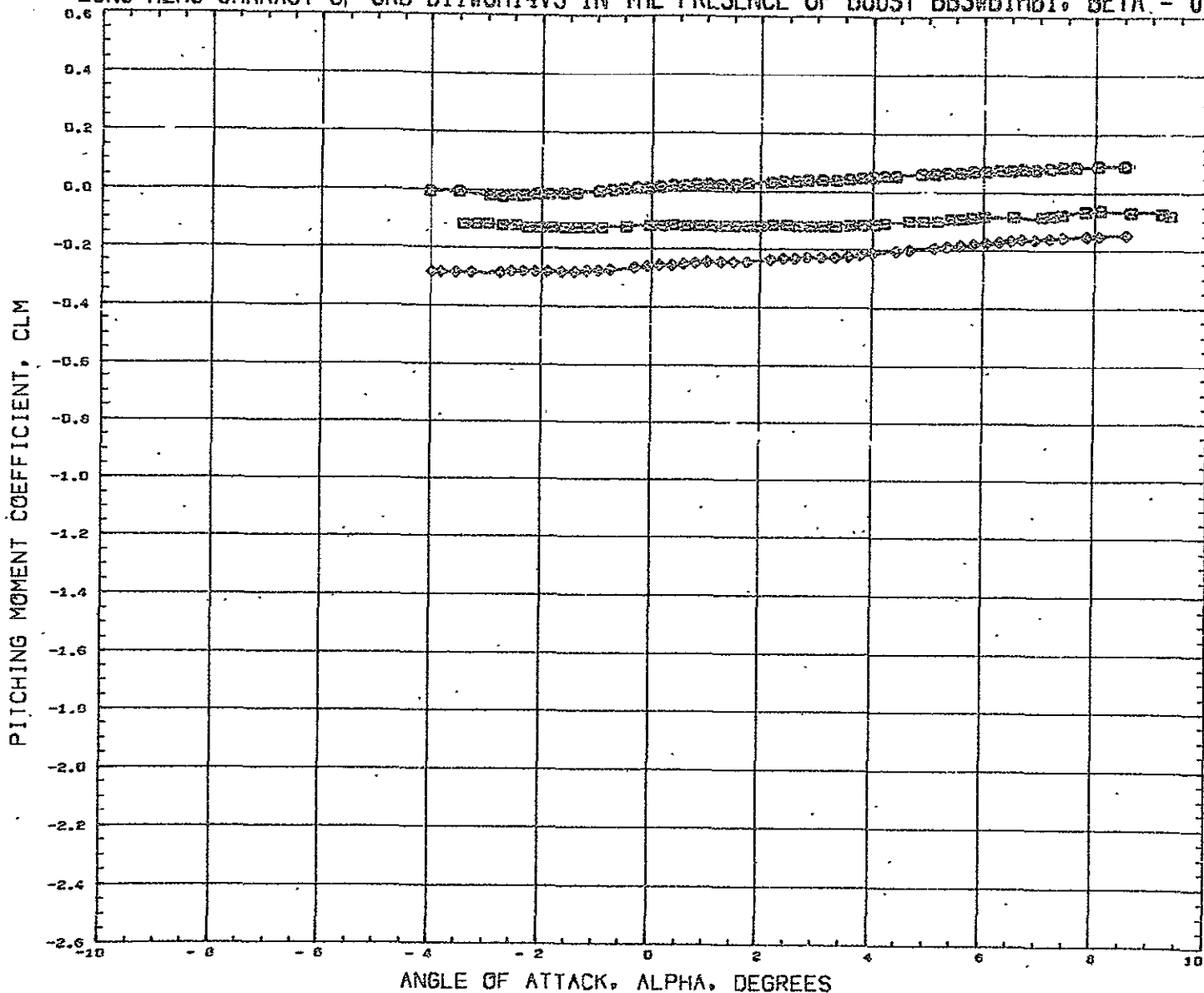


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	MACH	4.390
□	11.000	ALPB	5.000	BETB	0.000
◇	12.000				

REFERENCE INFORMATION		
REFS	20.6640	S8 IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



YMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	MACH	4.390
□	5.000	ALPB	5.000	BETS	0.000
◇	6.000				

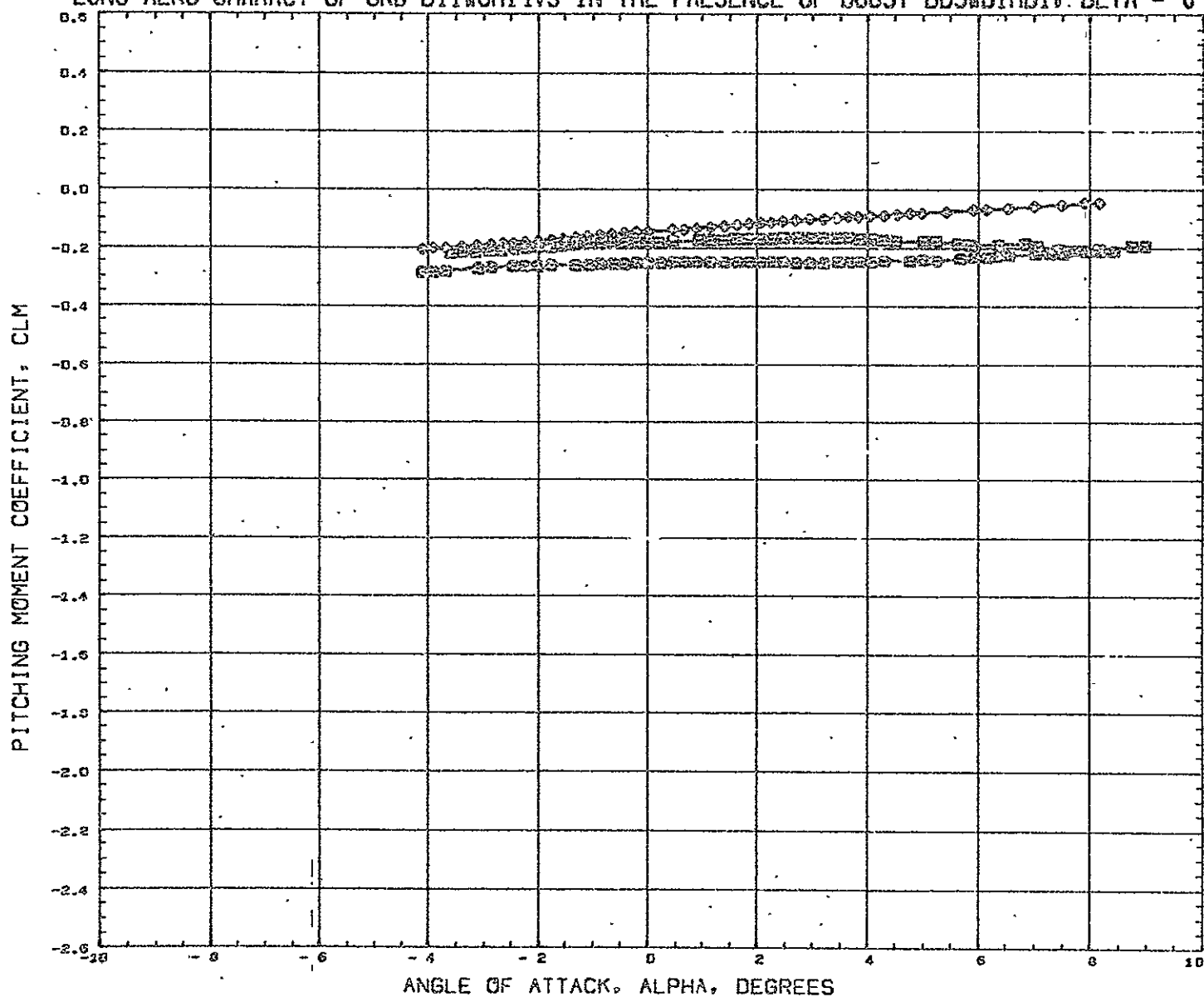
REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRF	9.3880	IN
YNRF	0.0000	IN
ZNRF	1.4600	IN
SCALE	0.0088	

MSC S-28 ORBITER B11W6H14V5 NEAR BB3WB1HB1

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LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1, BETA = 0



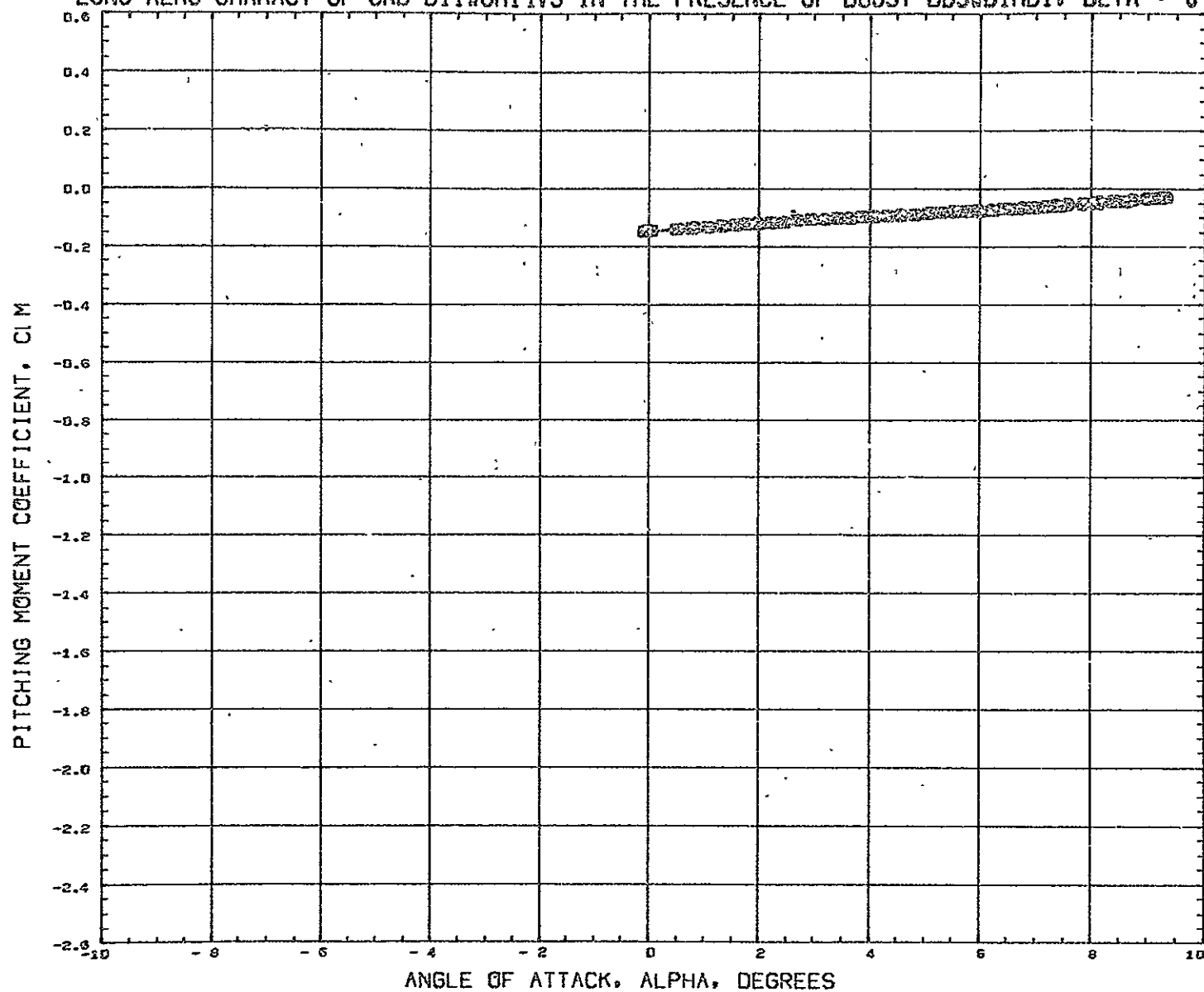
SYMBOL	SEPF05	PARAMETRIC VALUES			
□	7.000	BETA	0.000	MACH	4.390
□	8.000	ALFB	5.000	BETA	0.000
◇	9.000				

REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000



LONG AERO CHARACT OF ORB B11W6H14V5 IN THE PRESENCE OF BOOST BB3WB1HB1. BETA = 0

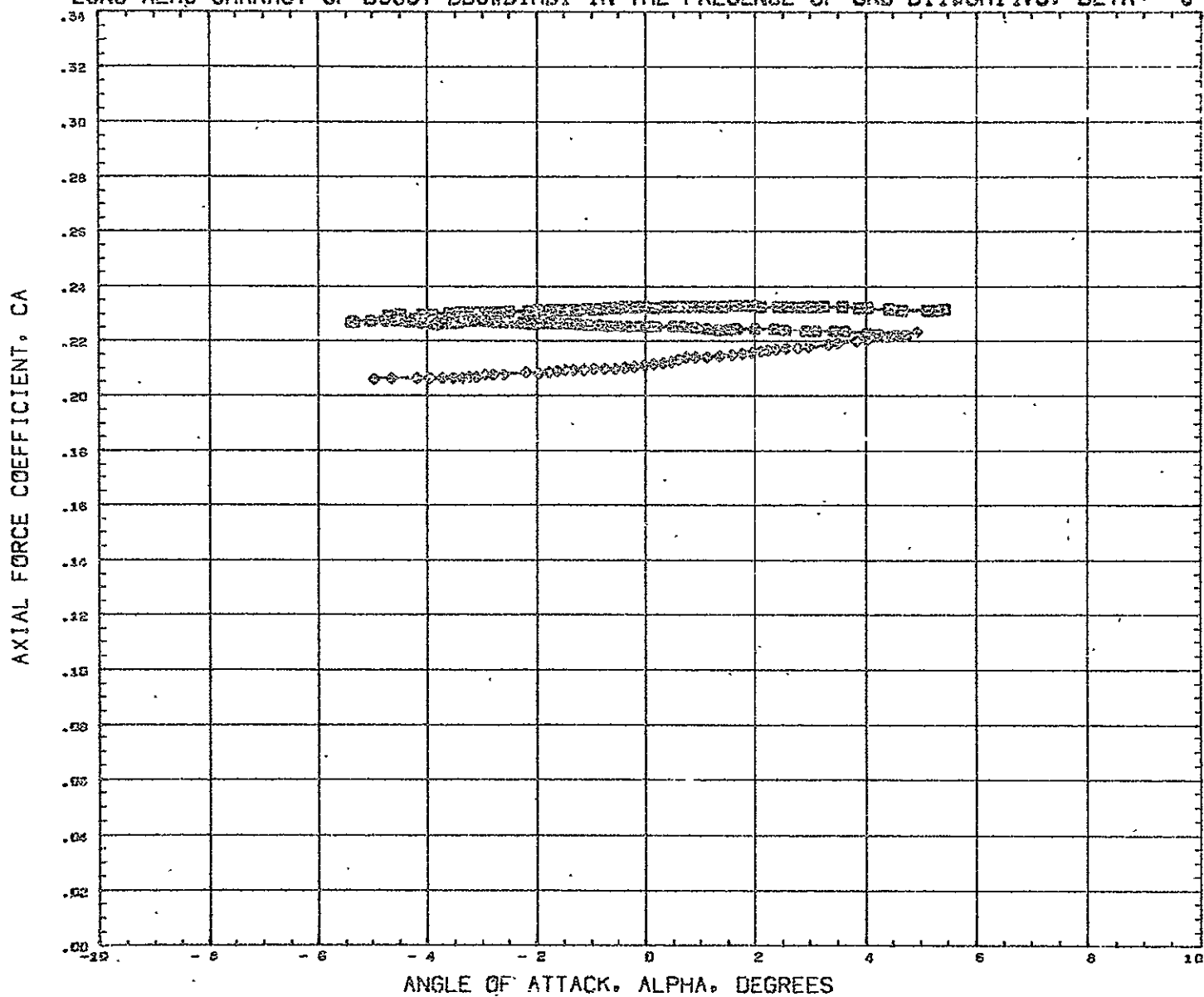


SYMBOL		SEFFOS	PARAMETRIC VALUES			
Q	10.000	BETA	0.000	MACH	4.390	
□	11.000	ALFB	5.000	BETB	0.000	
◇	12.000					

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRF	9.3880	IN
YHRF	0.0000	IN
ZHRF	1.4600	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEPPQS	PARAMETRIC VALUES
○	1.000	BETA 0.000 ALPB 0.000
□	2.000	BETB 0.000 MACH 1.810
◇	3.000	

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.6990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

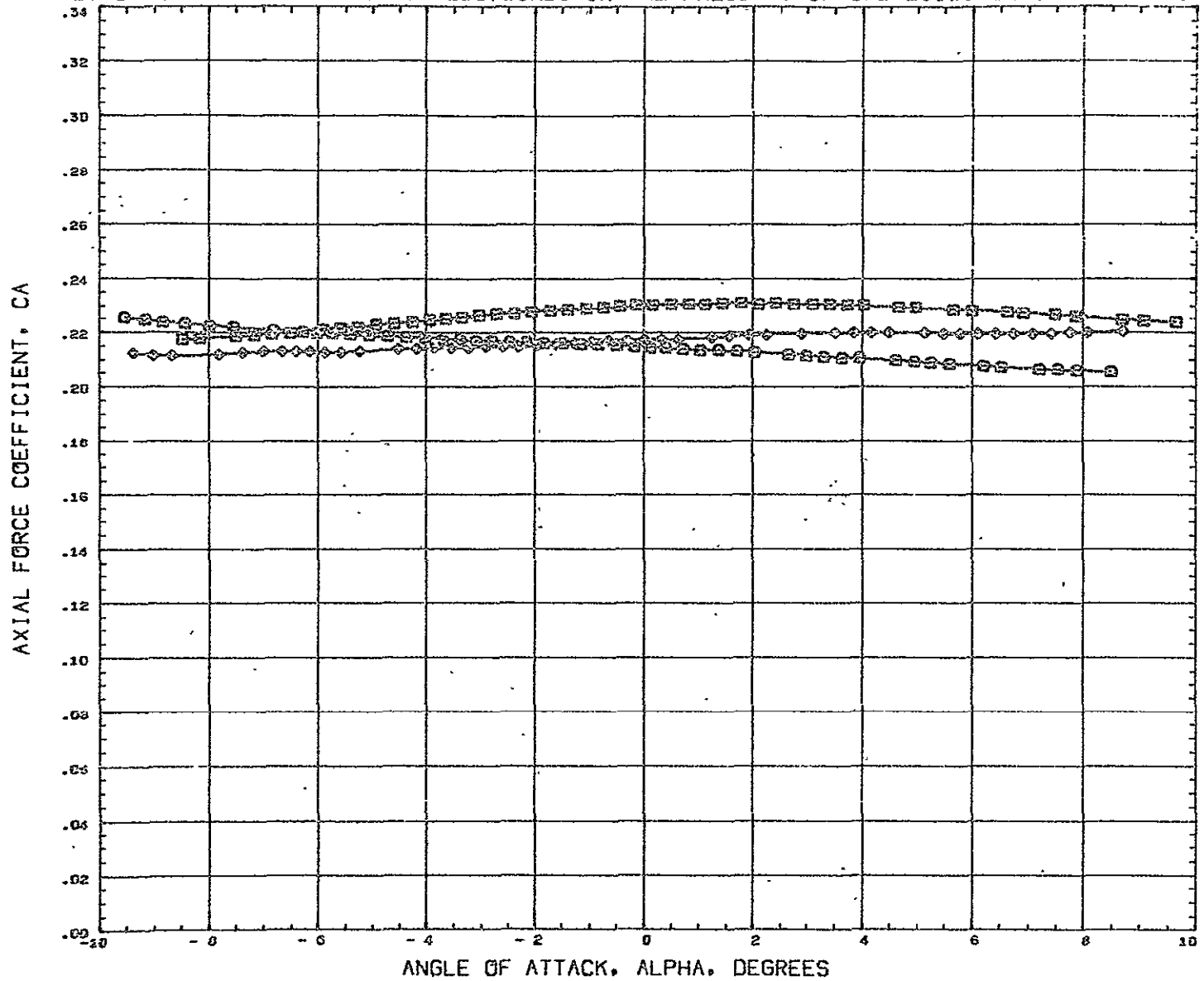
REFERENCE FILE .0000

MSC S-28 BOOSTER BB3WB1HB1 NEAR B11W6H14V5

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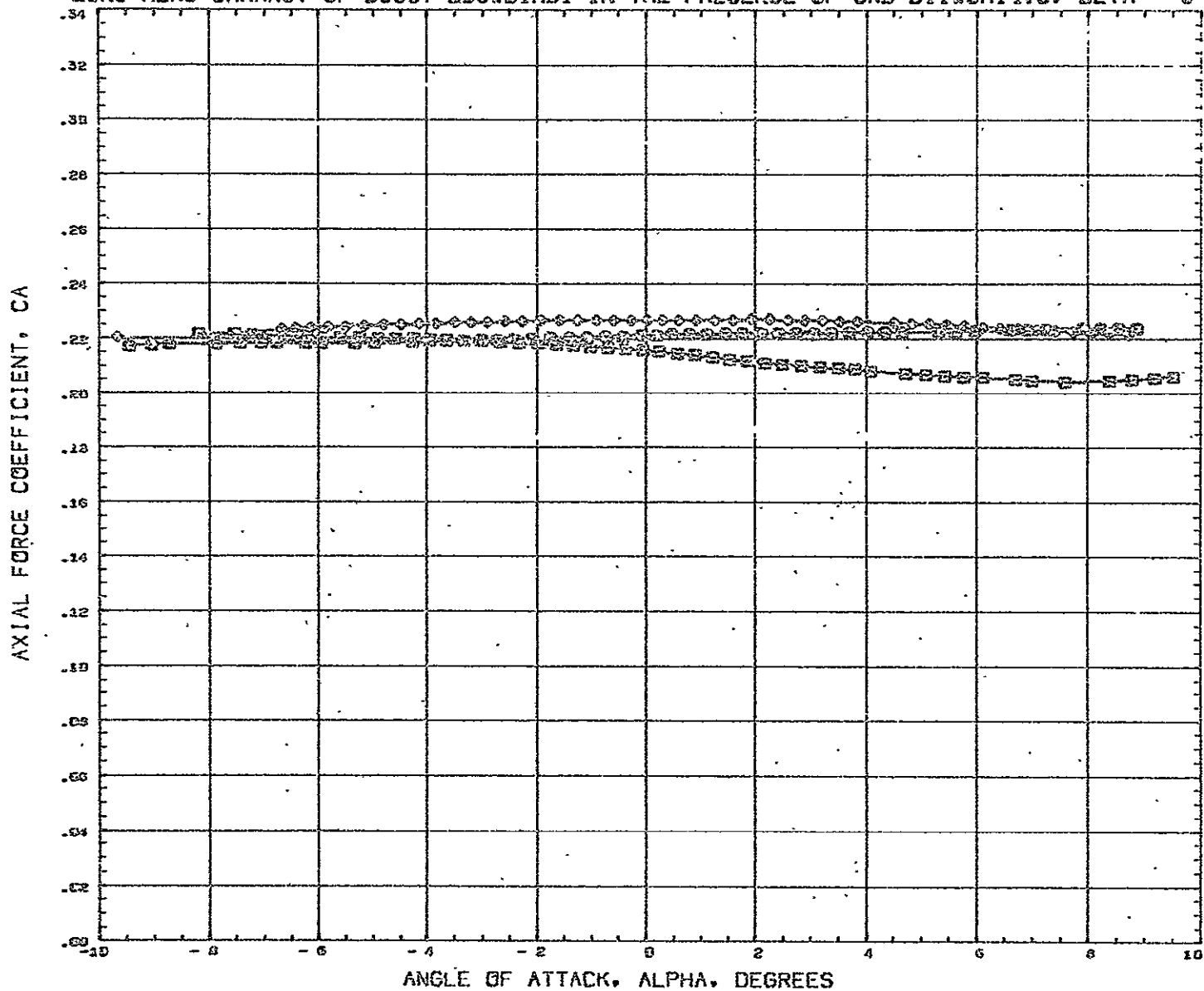
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LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
○	SEFFOS 4.000	BETA 0.000	ALPB 0.000			REFS 54.6580	SQ	IN
□	5.000	BETB 0.000	HACH 1.810			REFL -2.9920	IN	
◇	6.000					REFB 19.7000	YN	
						XHRP 15.8990	IN	
						YHRP 0.0000	IN	
						ZHRP 2.0000	IN	
						SCALE 0.0088		
REFERENCE FILE		.0000						

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0



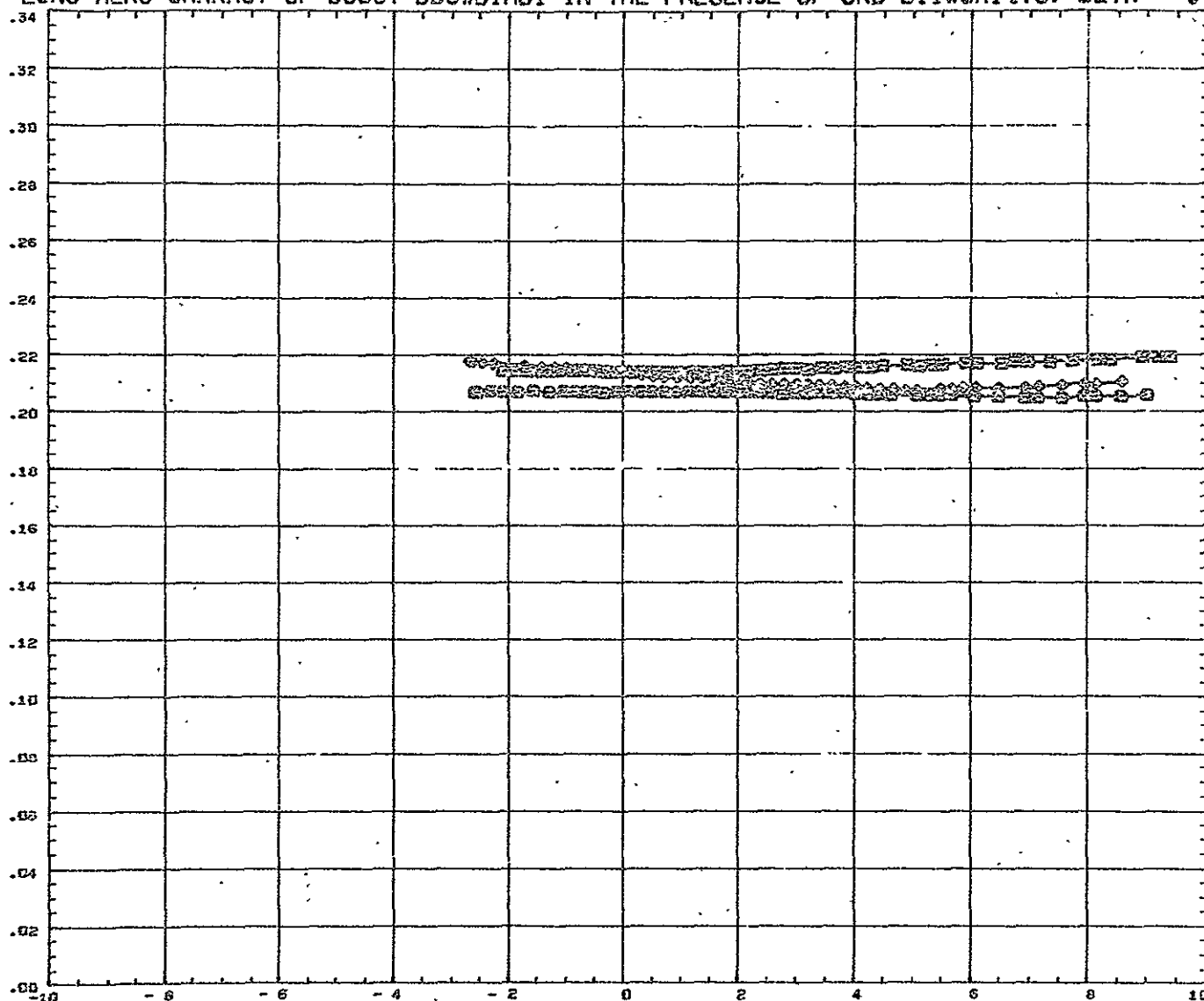
YMBOL	SEFFPOS	PARAMETRIC VALUES			
○	7.000	BETA	0.000	ALPB	0.000
□	0.000	BETB	0.000	NACH	1.010
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6560	SG IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRF	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

AXIAL FORCE COEFFICIENT, CA



ANGLE OF ATTACK, ALPHA, DEGREES

SYMBOL	SEFPOS	BETA	PARAMETRIC VALUES	ALPB	0.000
○	10.000	BETA	0.000	ALPB	0.000
□	11.000	BETB	0.000	HACH	1.810
◇	12.000				

REFERENCE FILE .0000

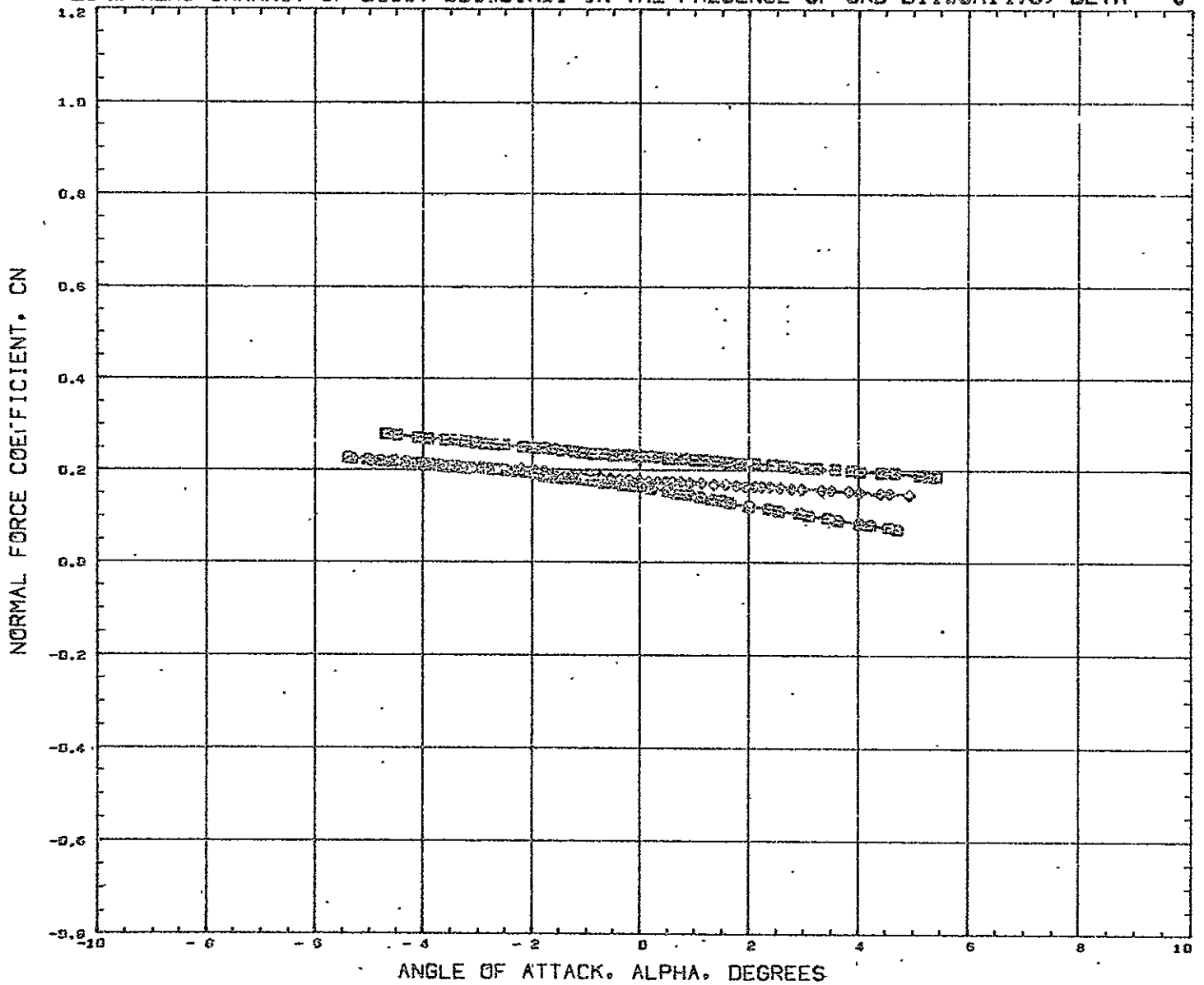
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

MSC S-28 BOOSTER BB3WB1HB1 NEAR B11W6H14V5

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LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11WGH14V5, BETA = 0



SYMBOL SEFFOS

○ 1.000
□ 2.000
◇ 3.000

PARAMETRIC VALUES

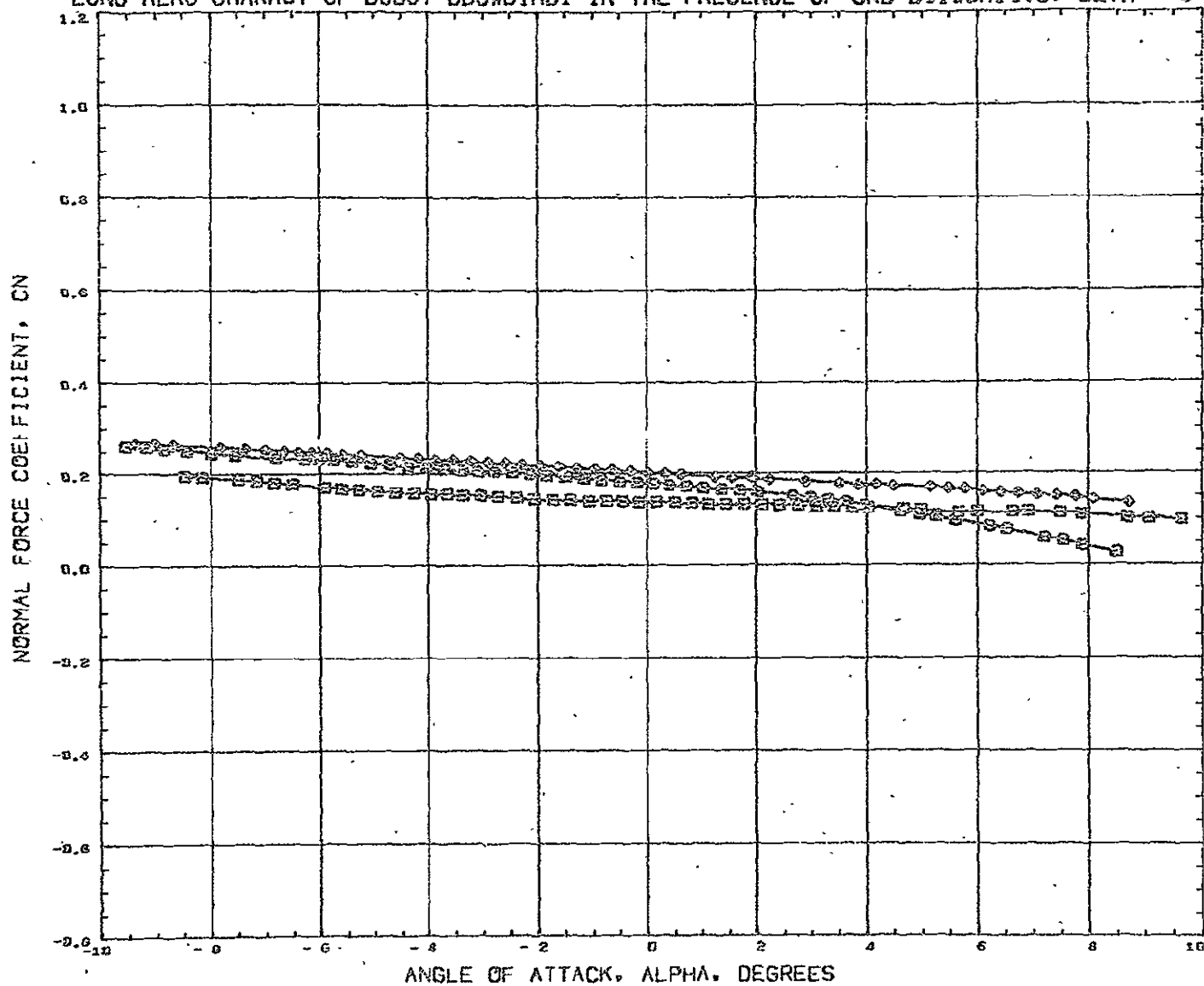
BETA 0.000 ALFB 0.000
BET8 0.000 NACH 1.010

REFERENCE INFORMATION

REFS 54.6580 SQ IN
REFL 2.9920 IN
REFB 19.7000 IN
XMRP 15.8990 IN
YMRP 0.0000 IN
ZMRP 2.0000 IN
SCALE 0.0088

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

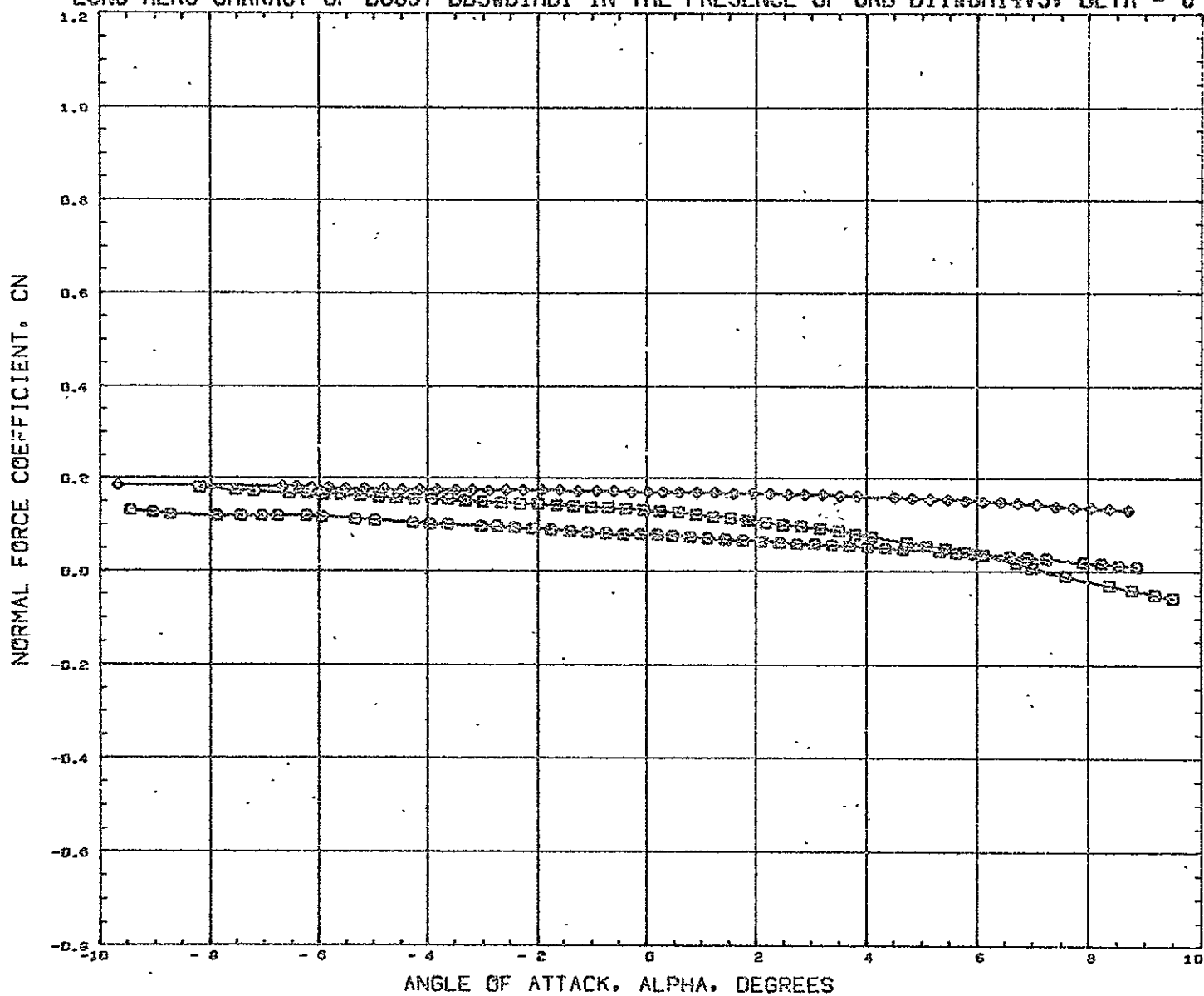


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	ALFB	0.000
□	5.000	BETB	0.000	NACH	1.810
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

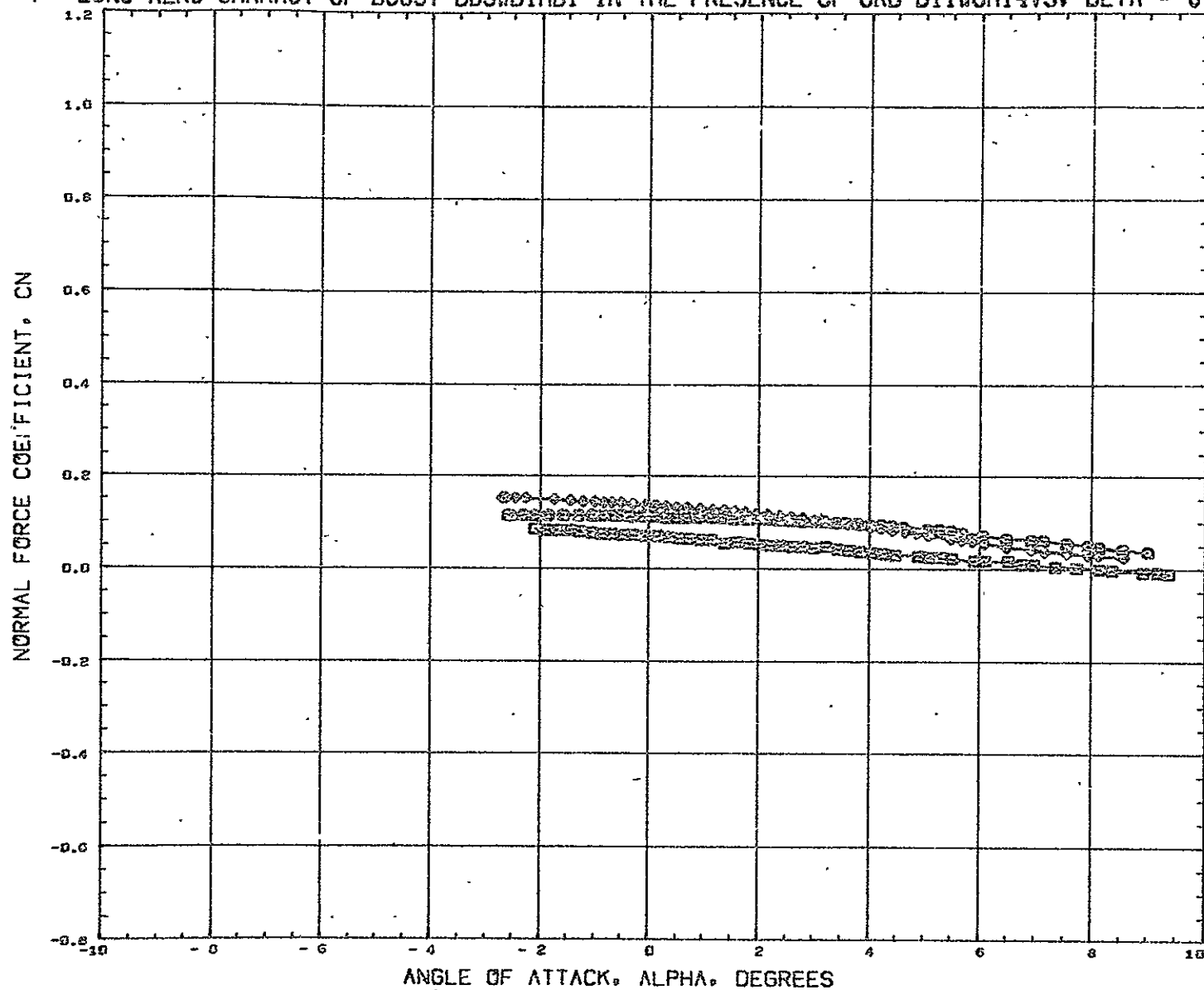


SYMBOL	SEPPOS	PARAMETRIC VALUES			
◇	7.000	BETA	0.000	ALPB	0.000
□	8.000	BETB	0.000	NACH	1.810
○	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SG IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRF	15.8990	IN
YNRF	0.0000	IN
ZNRF	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

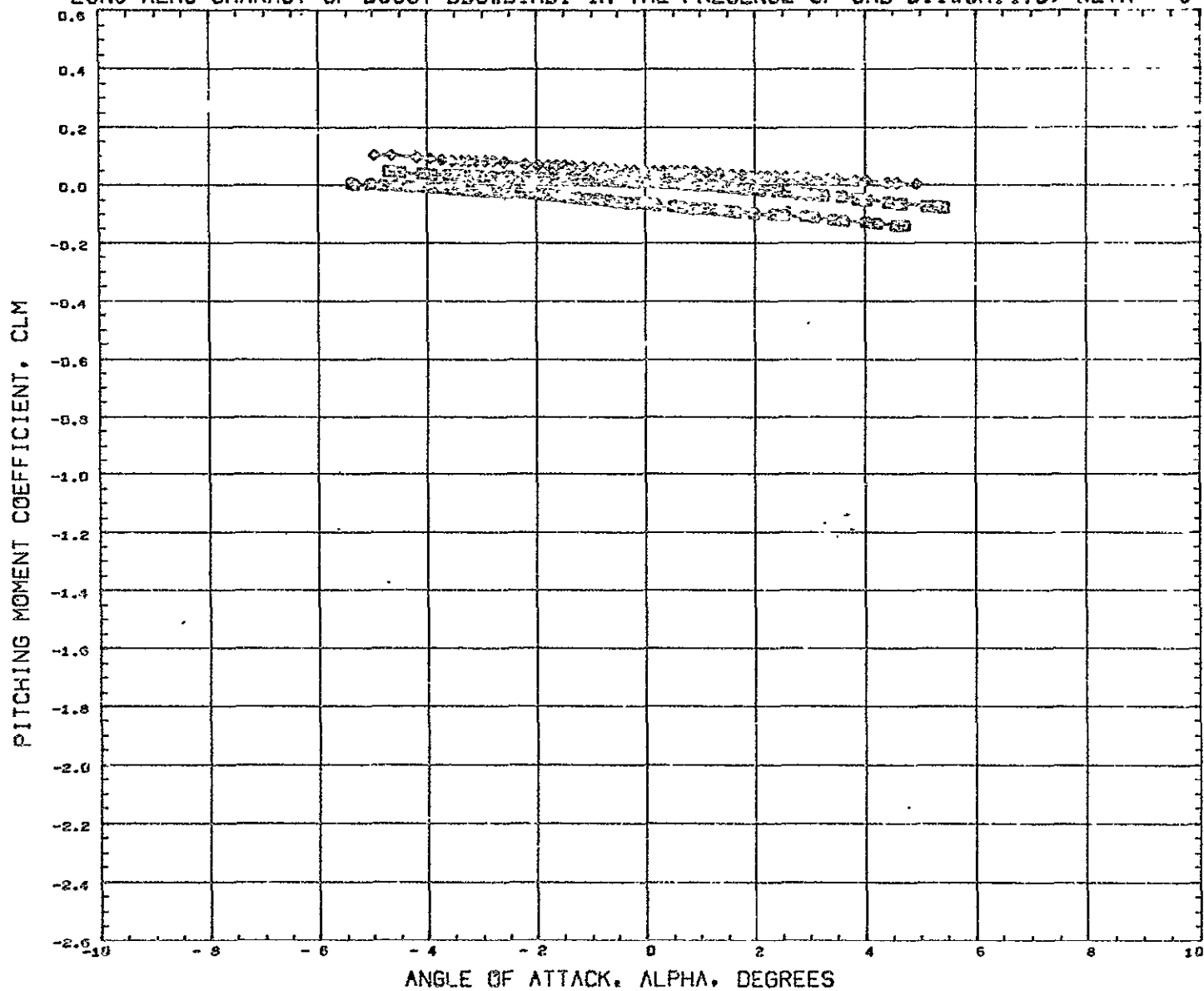


SYMBOL	SEPP05	PARAMETRIC VALUES			
□	10.000	BETA	0.000	ALPB	0.000
□	11.000	BETB	0.000	HACH	1.010
◇	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8990	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.6088	

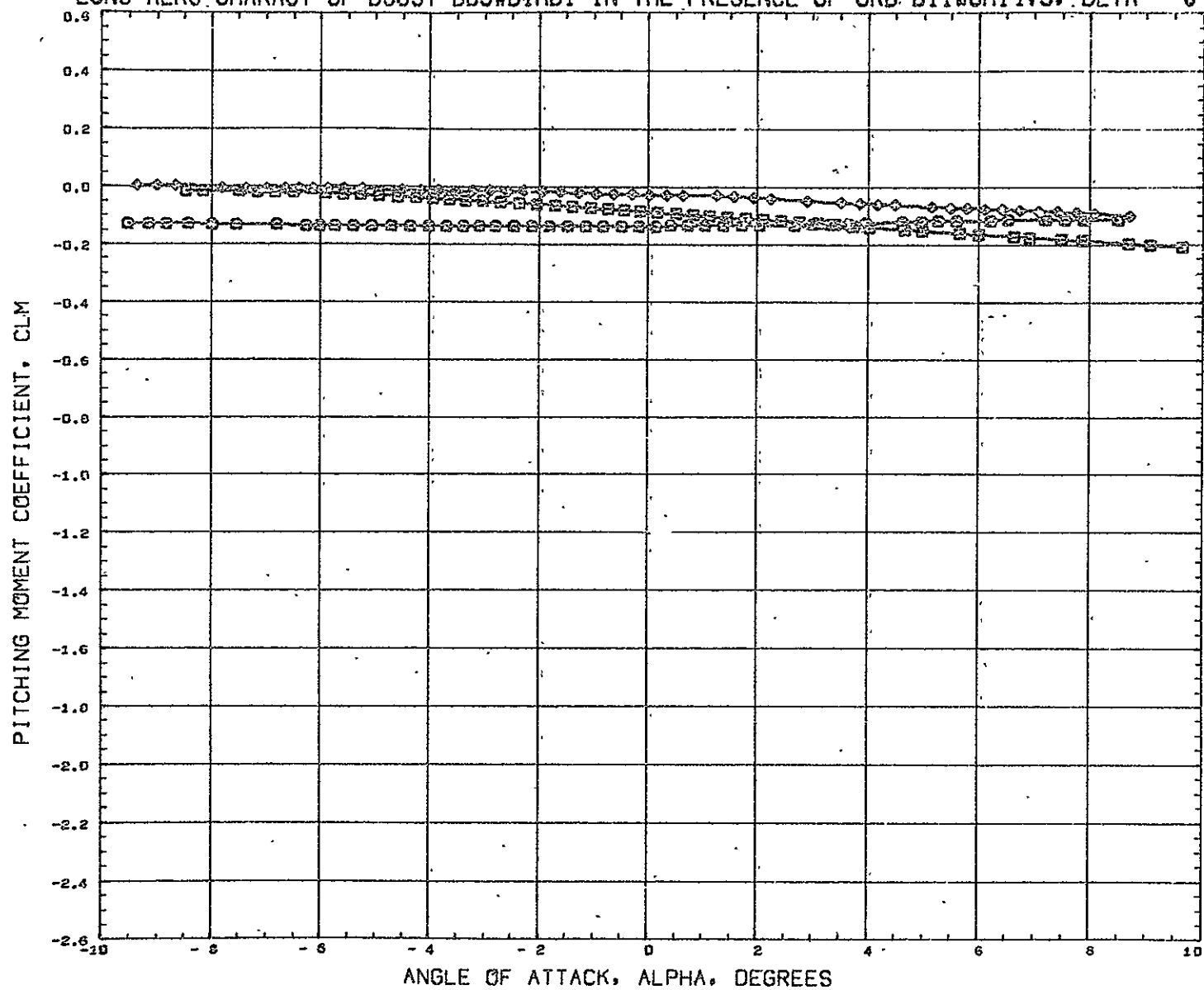
LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
○	1.000	BETA	0.000	ALPB	0.000	REFS	54.6380	SG IN
□	2.000	BETB	0.000	MACH	1.810	REFL	2.9920	IN
◇	3.000					REFB	19.7000	IN
						XHRP	15.8930	IN
						YHRP	0.0000	IN
						ZHRP	2.0000	IN
						SCALE	0.0080	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

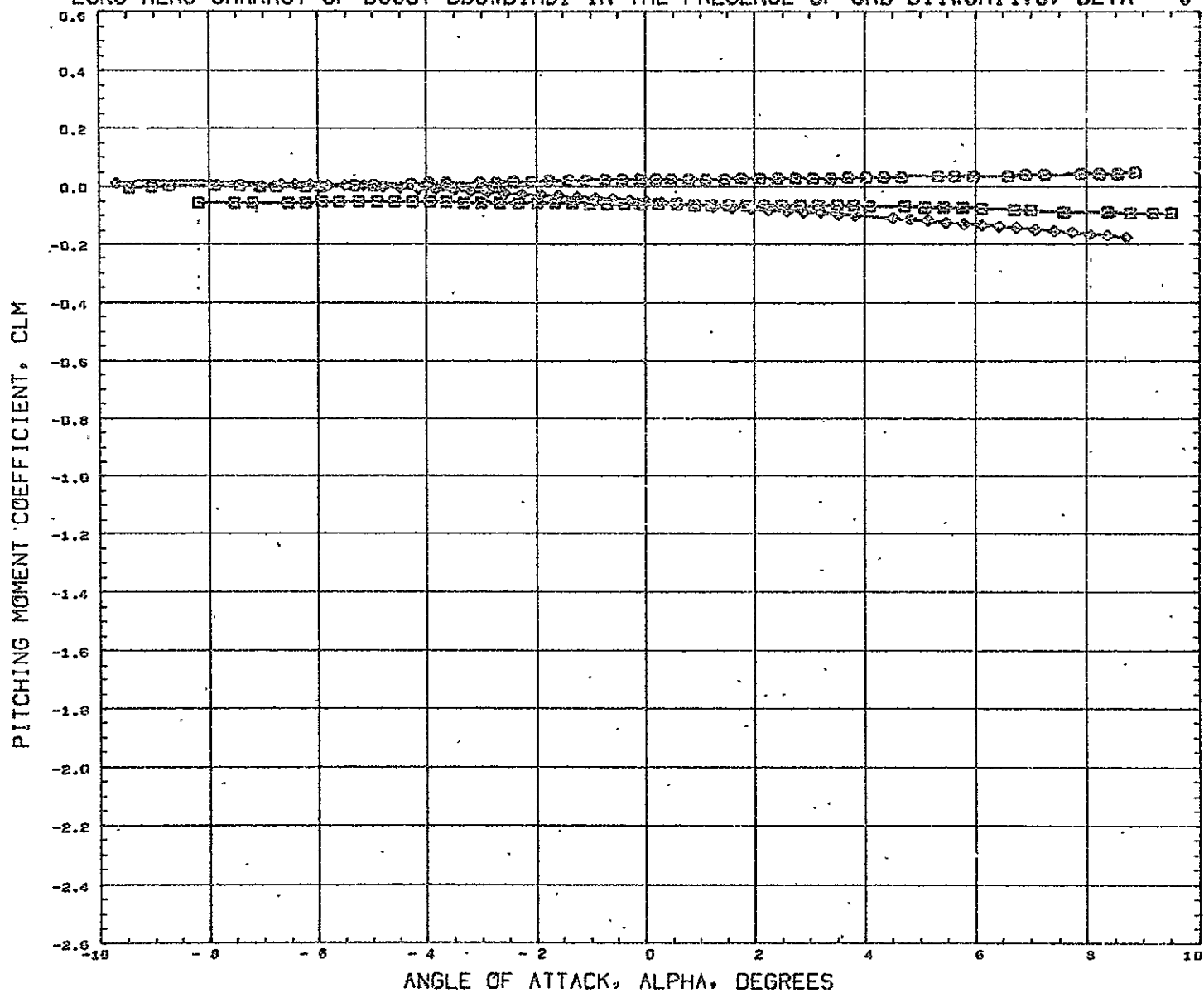


SYMBOL	SEPP03	PARAMETRIC VALUES			
○	4.000	BETA	0.000	ALPB	0.000
□	5.000	BETB	0.000	HACH	1.810
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

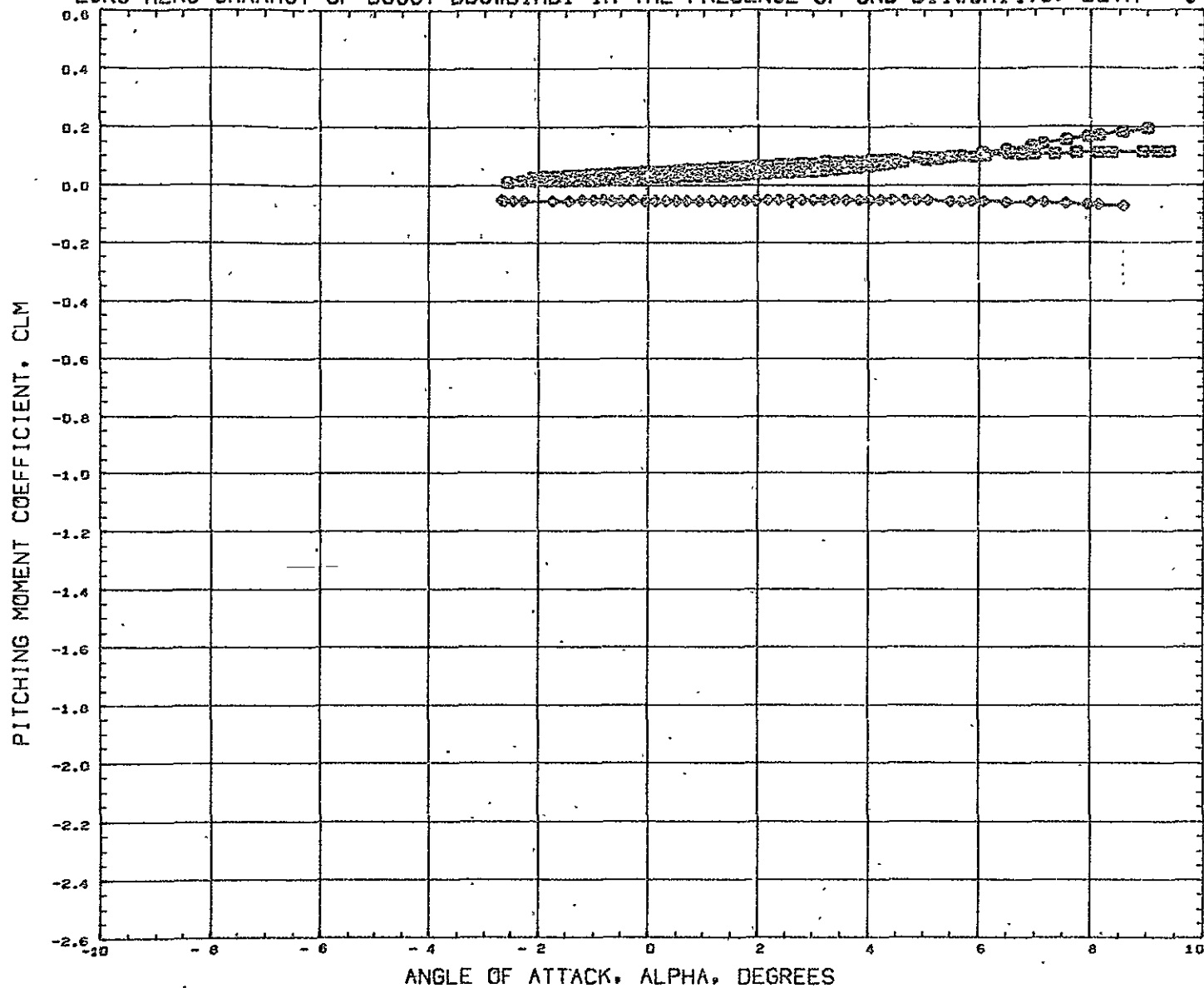


SYMBOL	SEFPOS	PARAMETRIC VALUES			
○	7.000	BETA	0.000	ALPB	0.000
□	8.000	BETB	0.000	NACH	1.810
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.6990	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

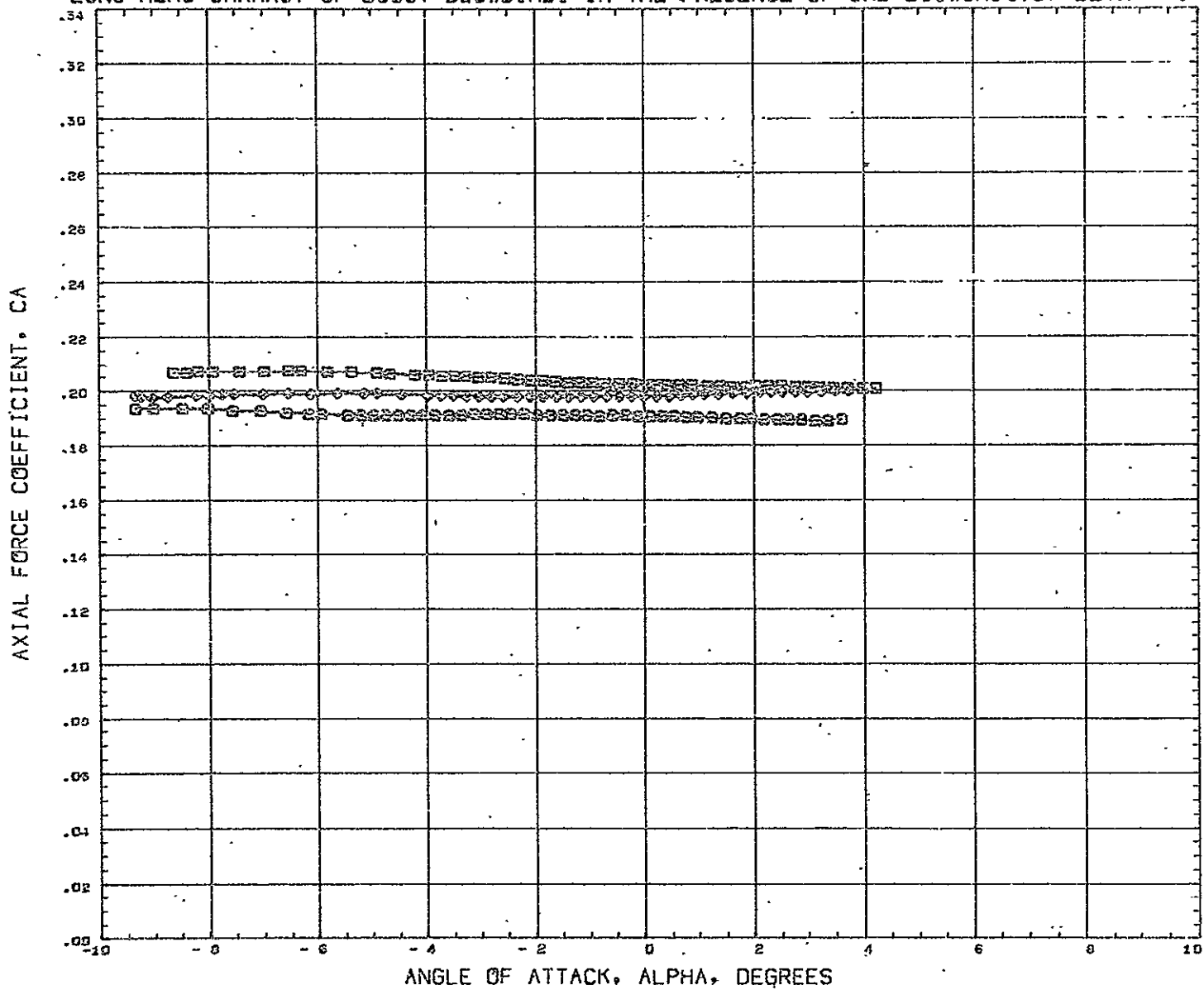


SYMBOL	SEPPQS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	ALPB	0.000
◻	11.000	BETB	0.000	MACH	1.810
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

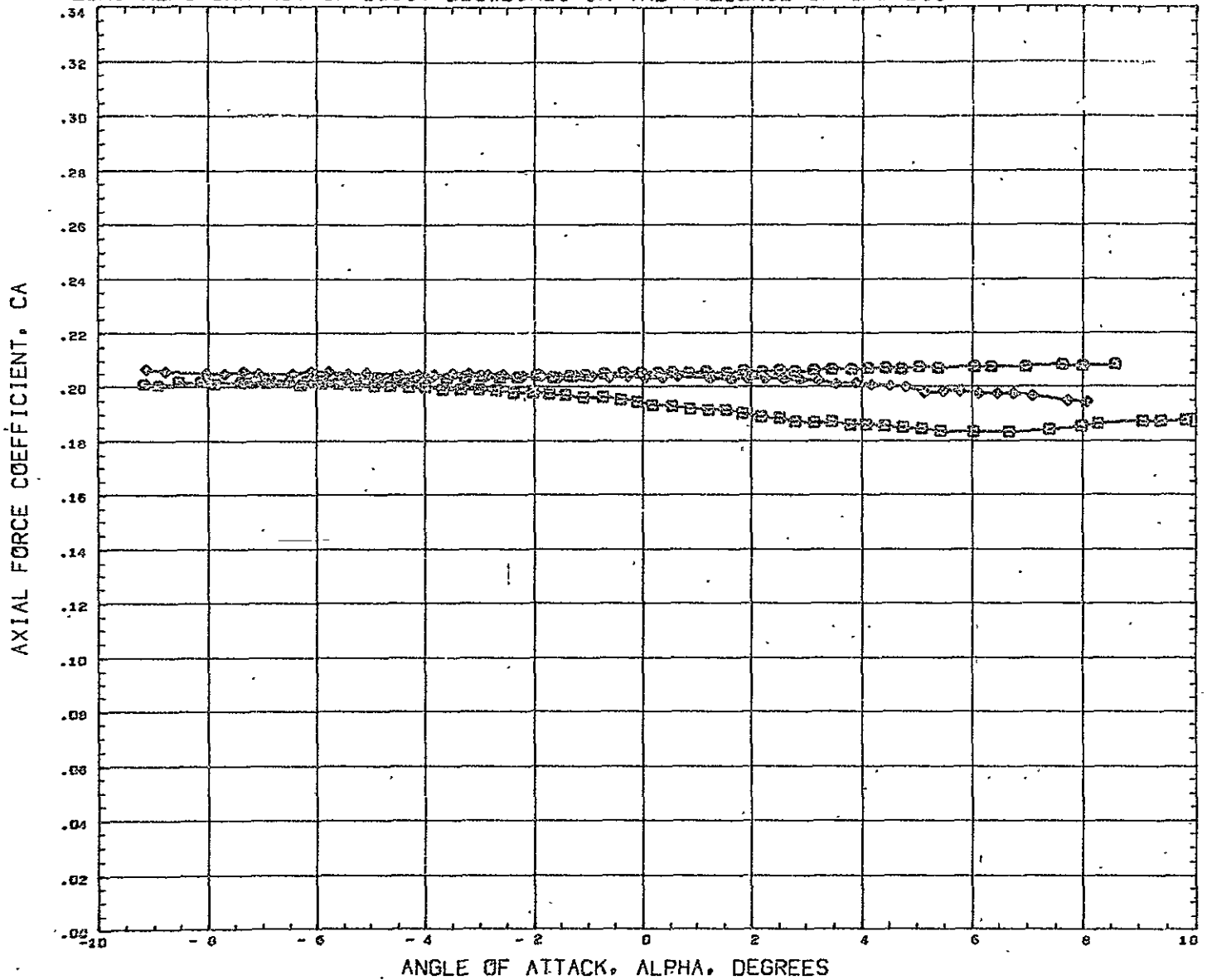


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	ALFB	- 5.000
◇	5.000	BETB	0.000	MACH	1.810
○	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

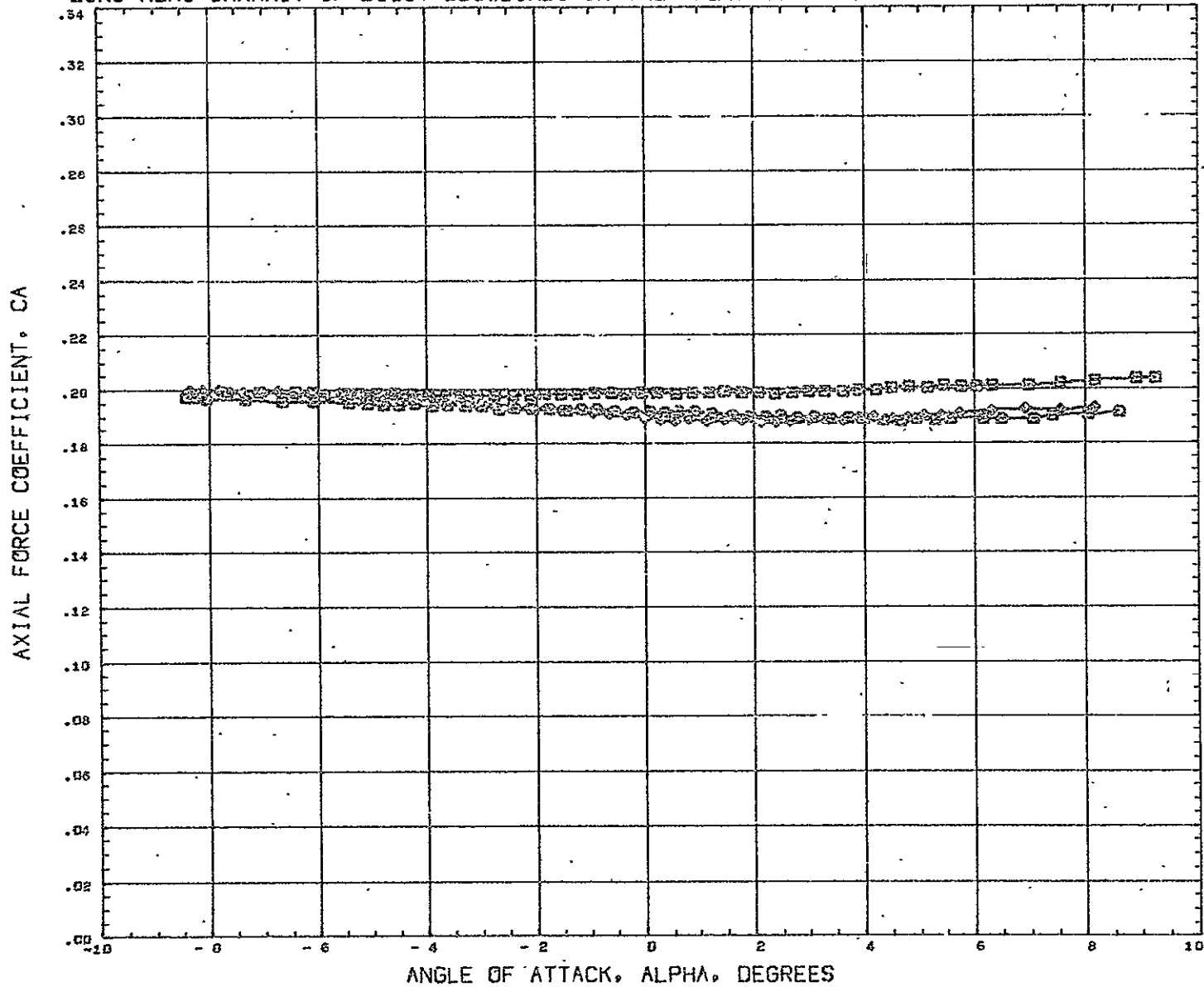


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	ALPB
○	7.000	BETA	0.000	ALPB	- 5.000
□	8.000	BETB	0.000	MACH	1.810
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

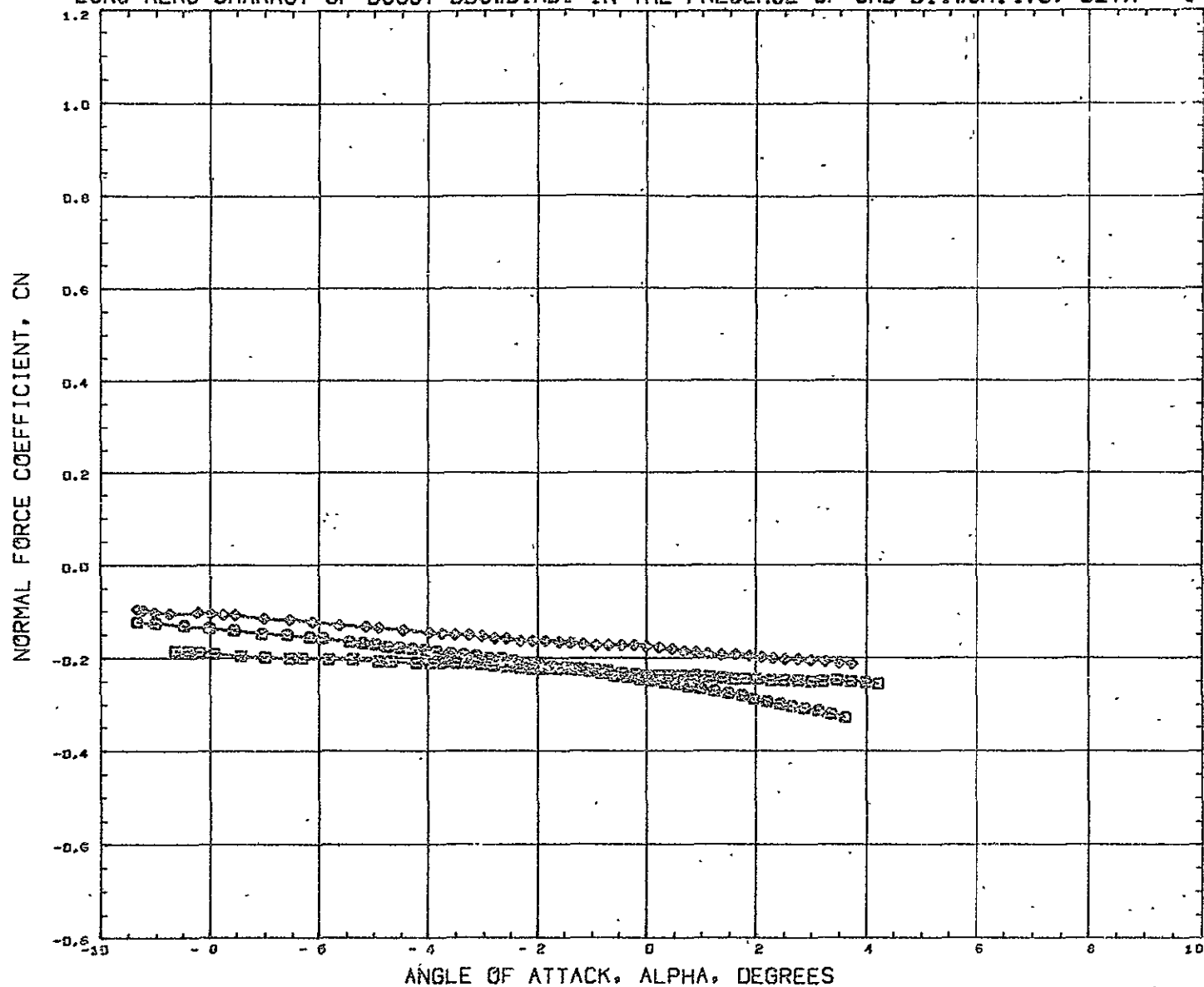


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPS	HACH
□	10.000	BETA	0.000	- 5.000	
◇	11.000	BETA	0.000		1.610
○	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

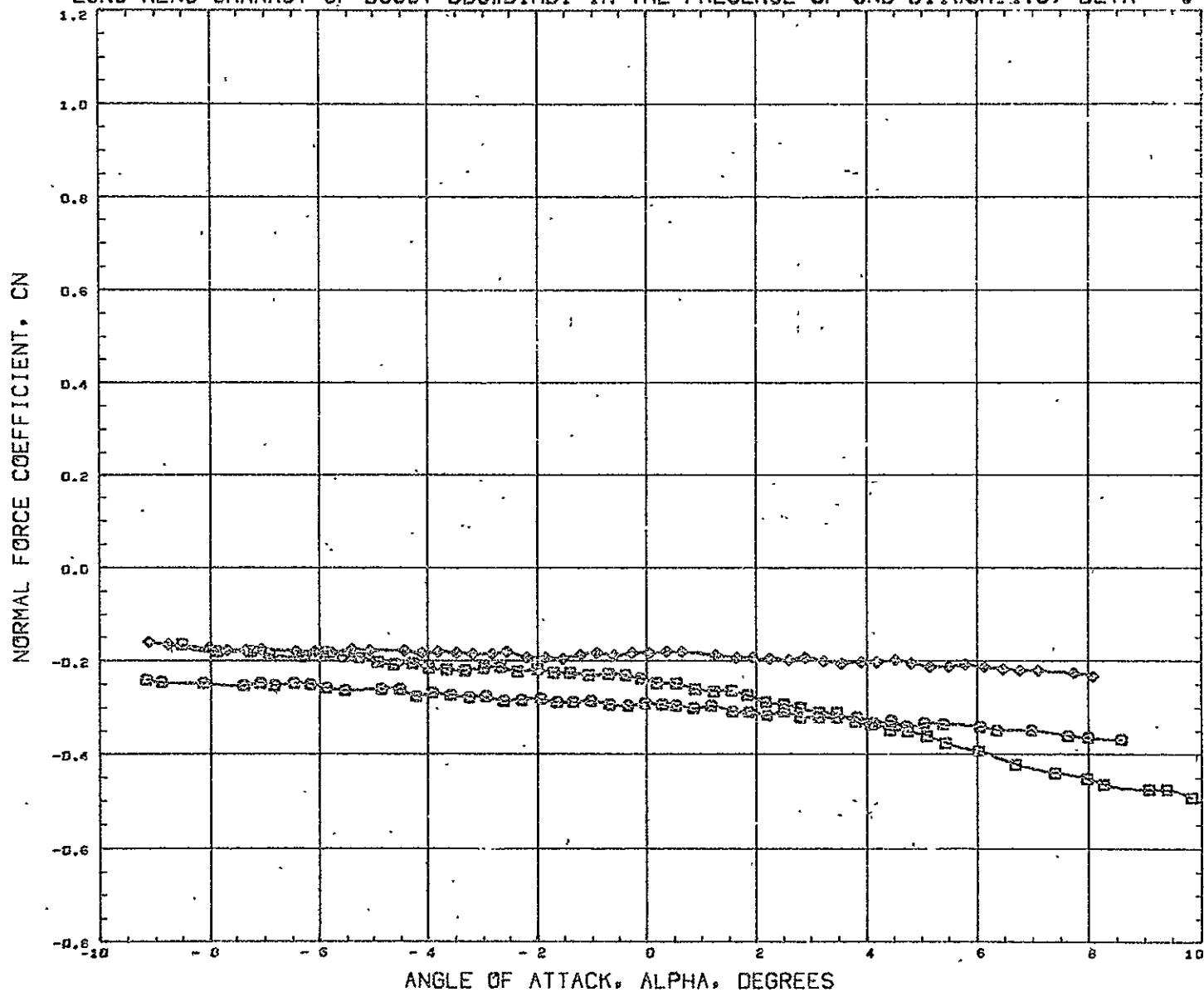


SYMBOL	SEPP05	PARAMETRIC VALUES
□	4.000	BETA 0.000 ALFB 5.000
□	5.000	BETA 0.000 MACH 1.810
◇	6.000	

REFERENCE INFORMATION		
REFS	54.6580	50 IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

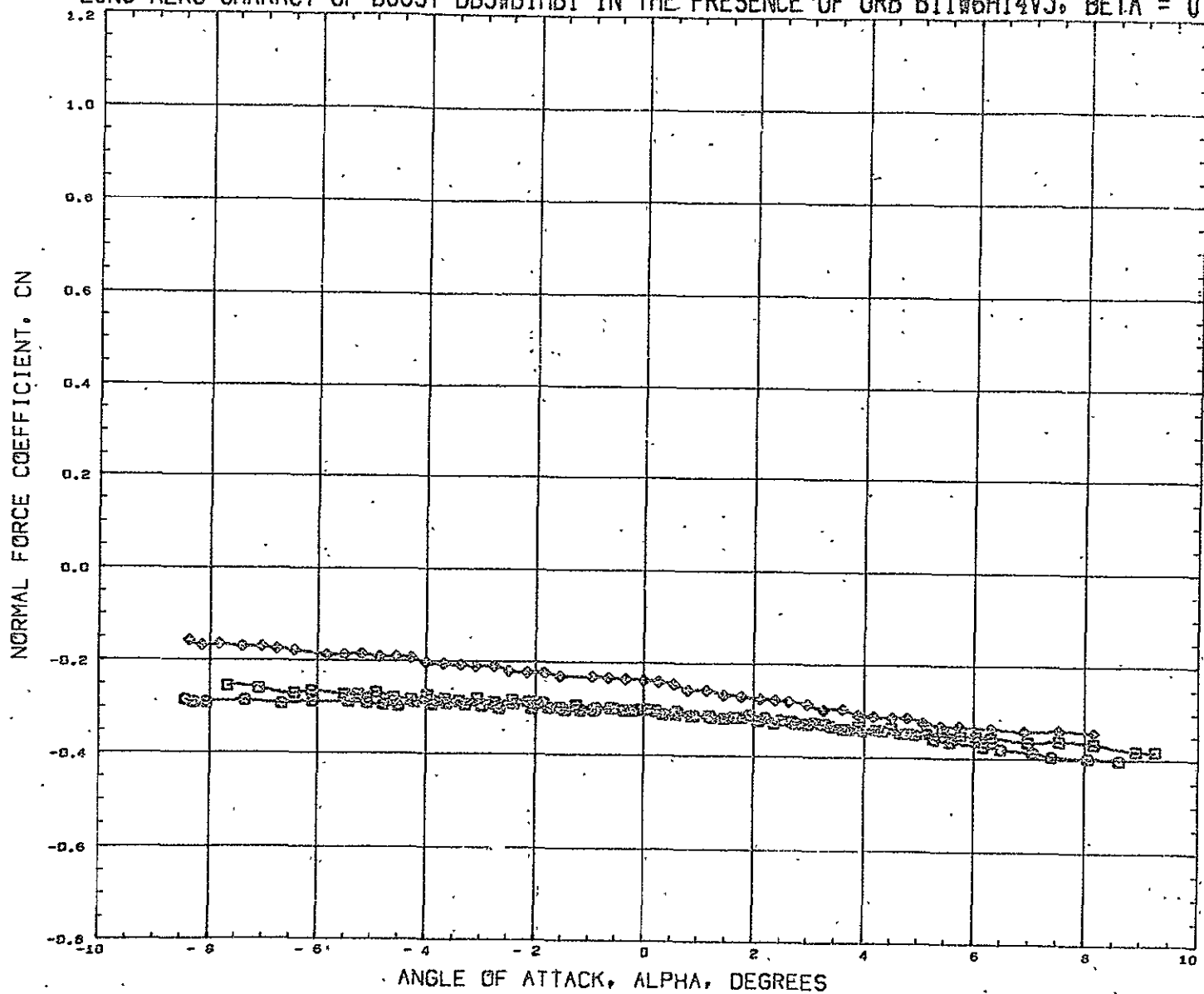


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	MACH
◇	7.000	0.000	ALPB	- 5.000	
□	8.000	0.000	MACH	1.010	
○	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



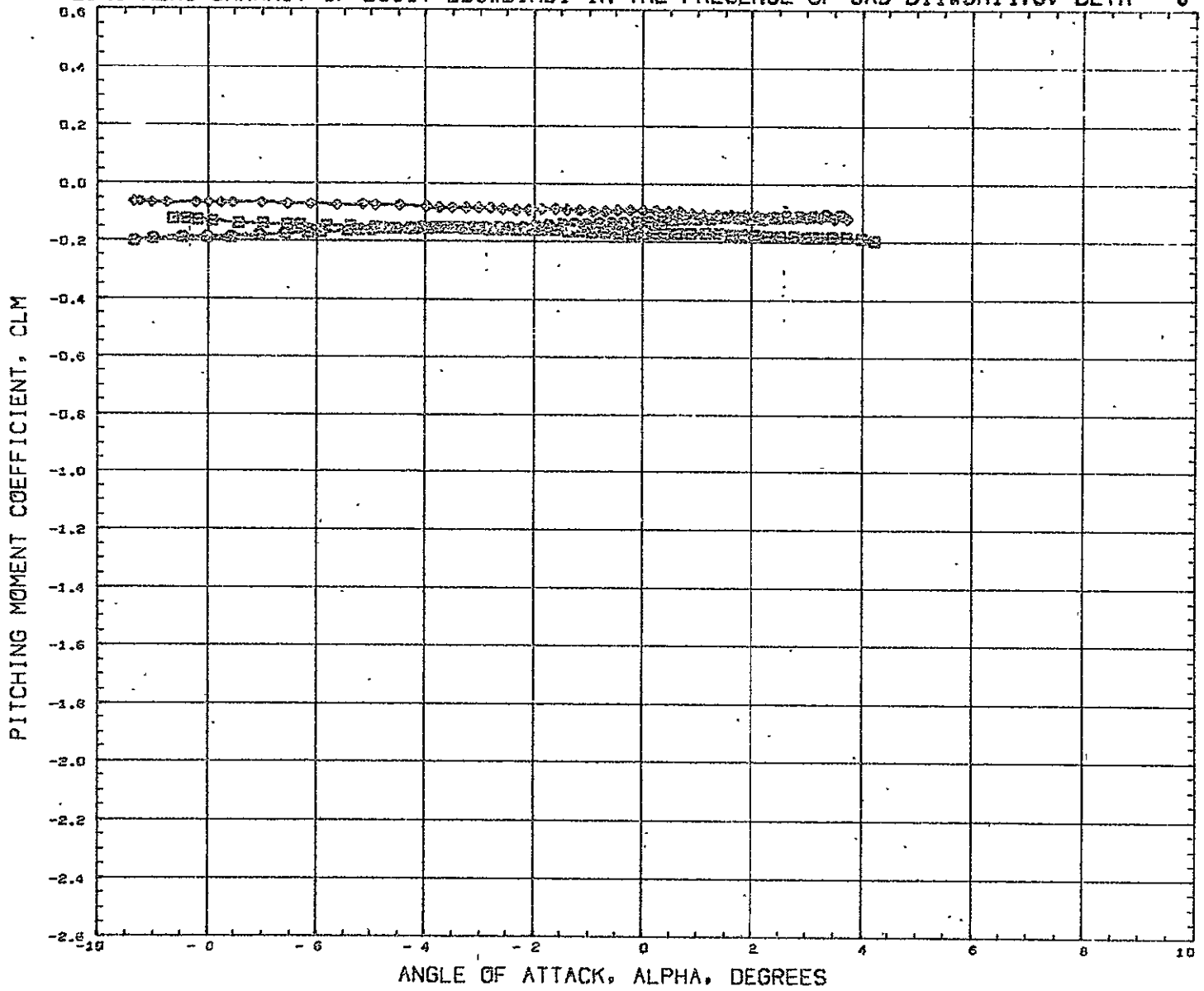
SYMBOL SEFFOS
 □ 10.000
 ◇ 11.000
 ○ 12.000

PARAMETRIC VALUES
 BETA 0.000 ALPB - 5.000
 BETB 0.000 NACH 1.810

REFERENCE INFORMATION
 REFS 54.6580 SQ IN
 REFL 2.9920 IN
 REFB 19.7000 IN
 XNRF 15.8990 IN
 YNRF 0.0000 IN
 ZNRF 2.0000 IN
 SCALE 0.0088

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

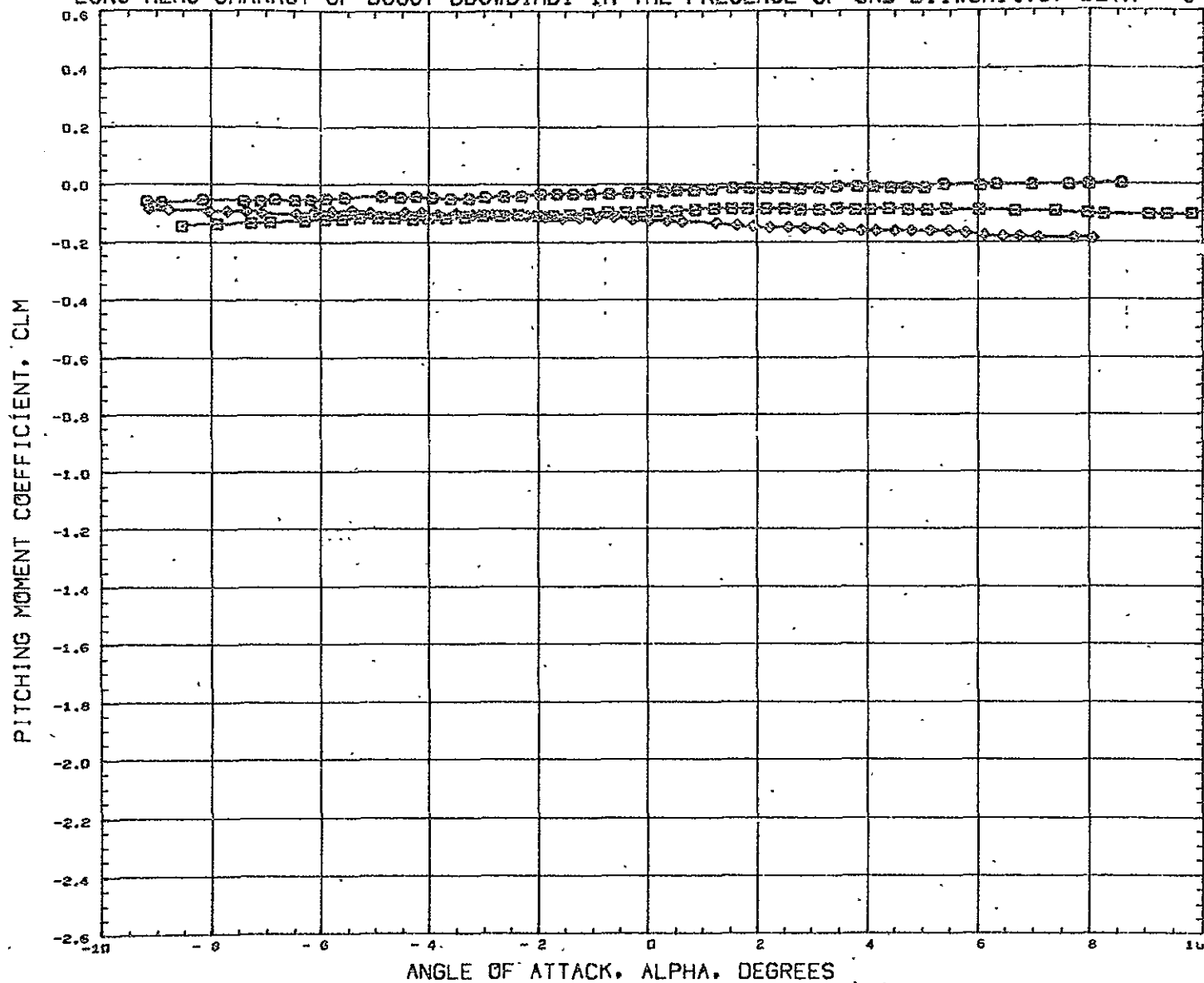


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	ALPB	- 5.000
□	5.000	BEYB	0.000	HACH	1.810
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES
○	7.000	0.000	ALFB - 5.000
□	8.000	0.000	HACH 1.810
◇	9.000		

REFERENCE INFORMATION		
REFS	54.6580	SG IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

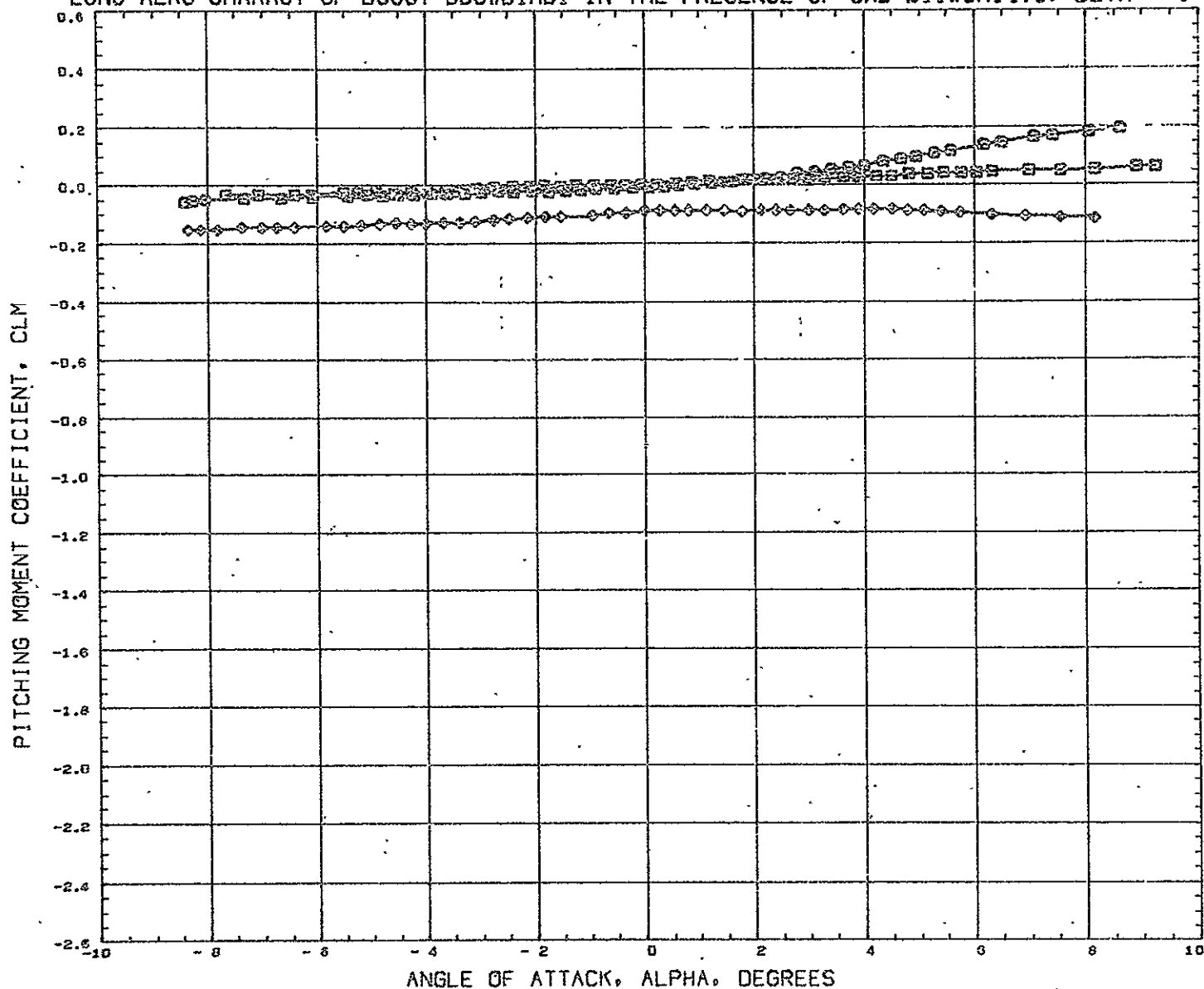
REFERENCE FILE .0000

MSC S-28 BOOSTER BB3WB1HB1 NEAR B11W6H14V5

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LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

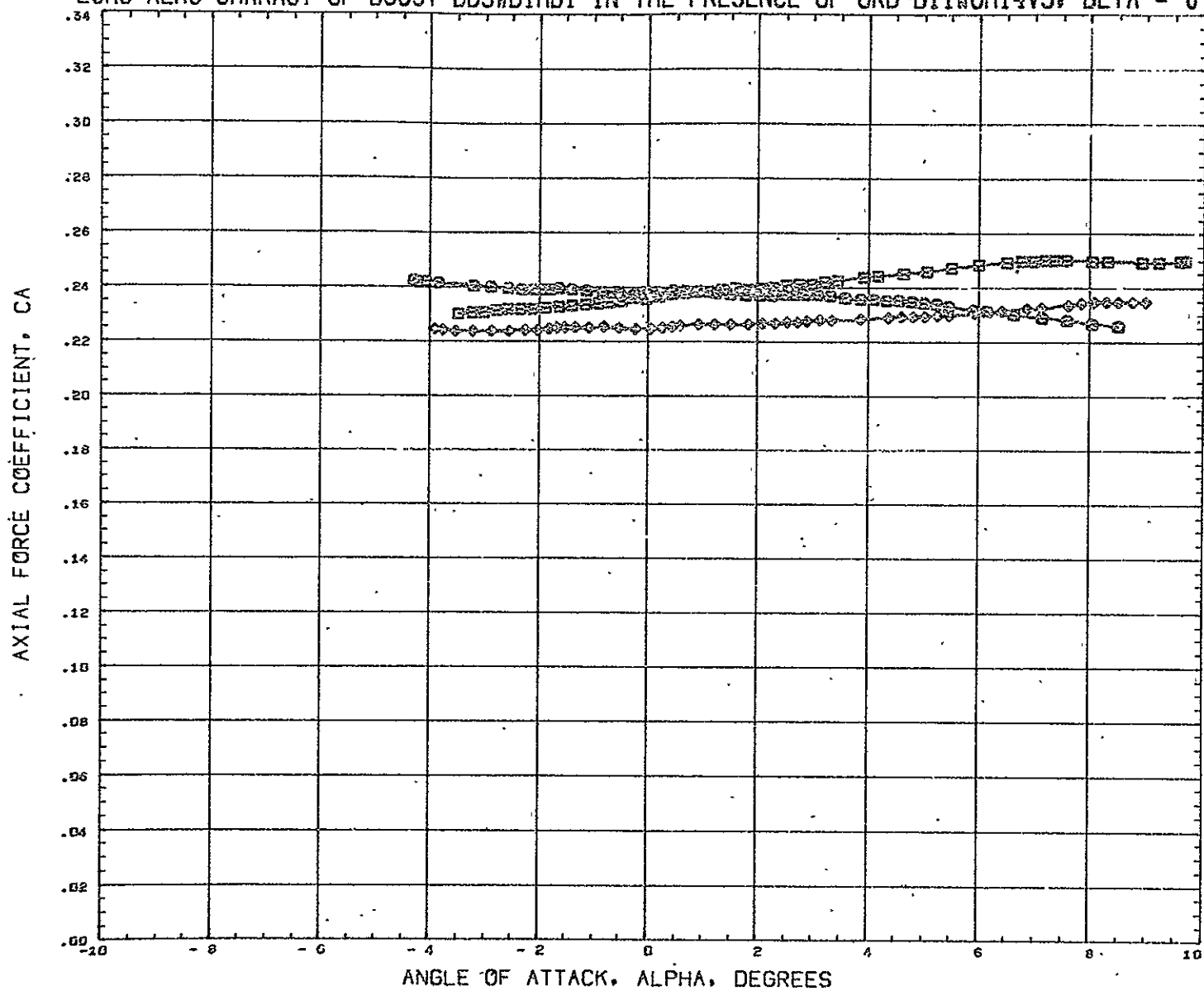


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	ALPB	- 5.000
□	11.000	BETS	0.000	HACH	1.010
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YHRP	0.0000	IN
ZNRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

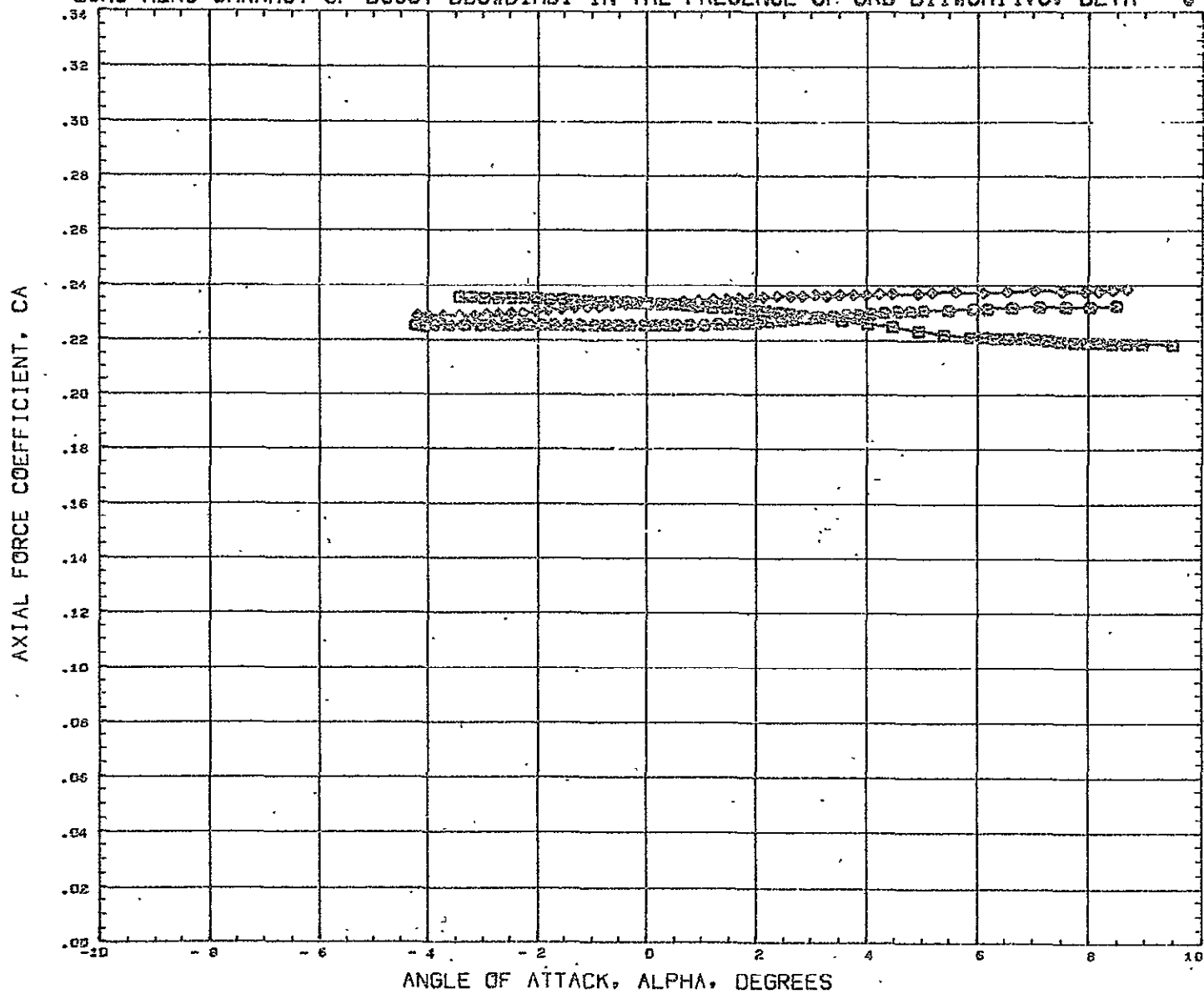


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	ALPB	5.000
□	5.000	BETB	0.000	HACH	1.810
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	50 IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

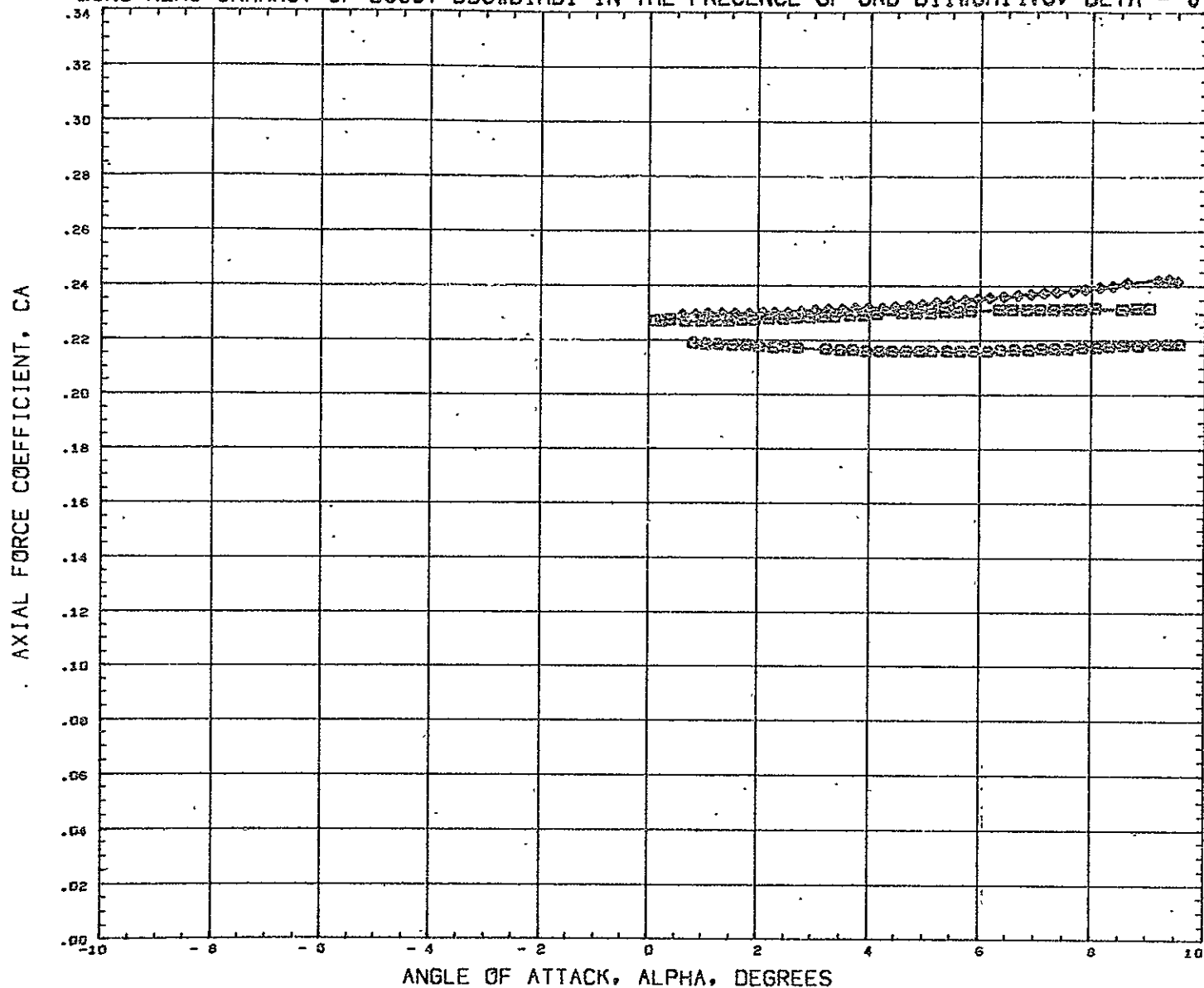


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALFB	5.000
□	7.000	BETA	0.000	ALFB	5.000
◇	8.000	BETA	0.000	NACH	1.810
○	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SG IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

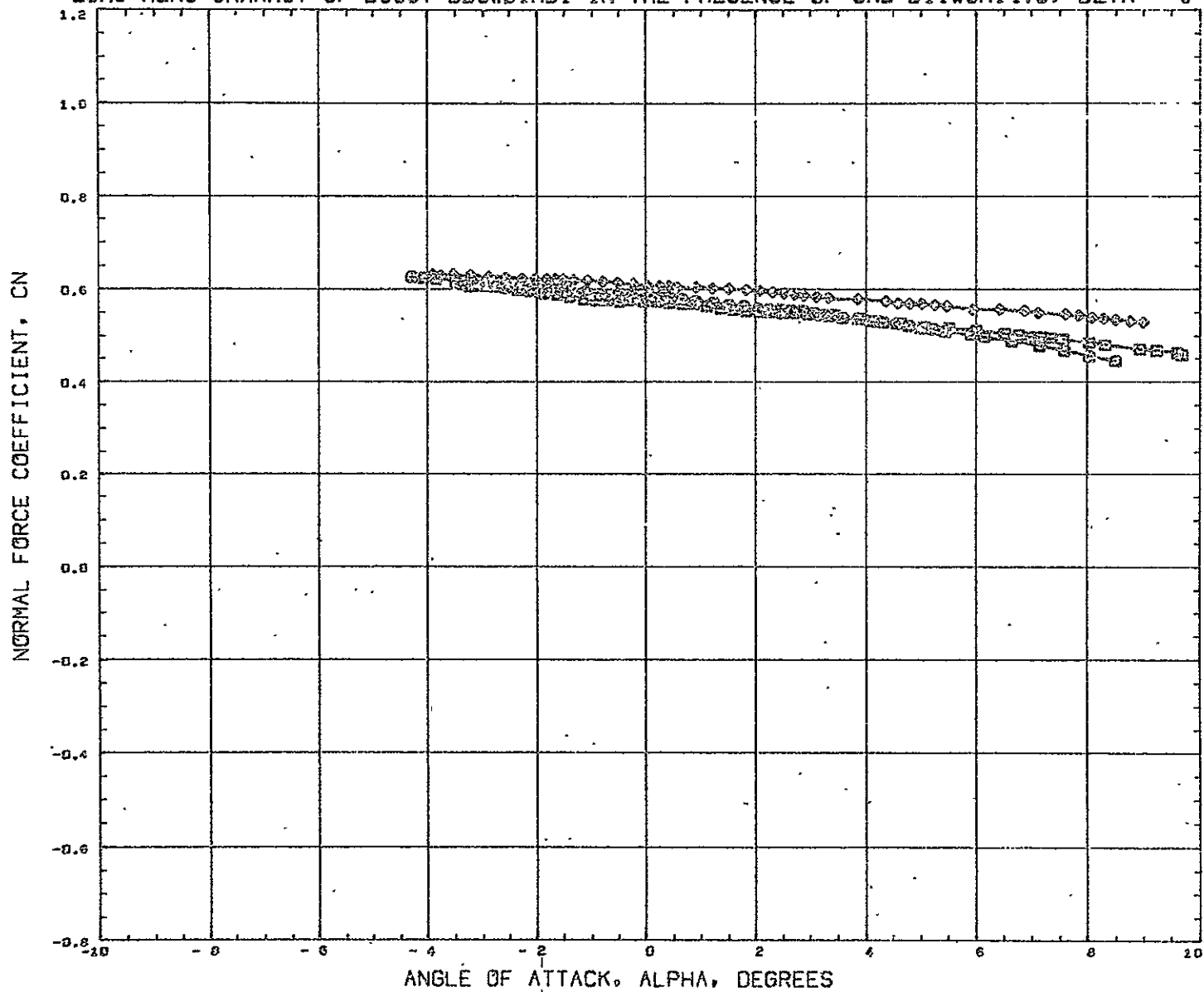


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	ALPB	5.000
□	11.000	BETB	0.000	MACH	1.810
◇	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

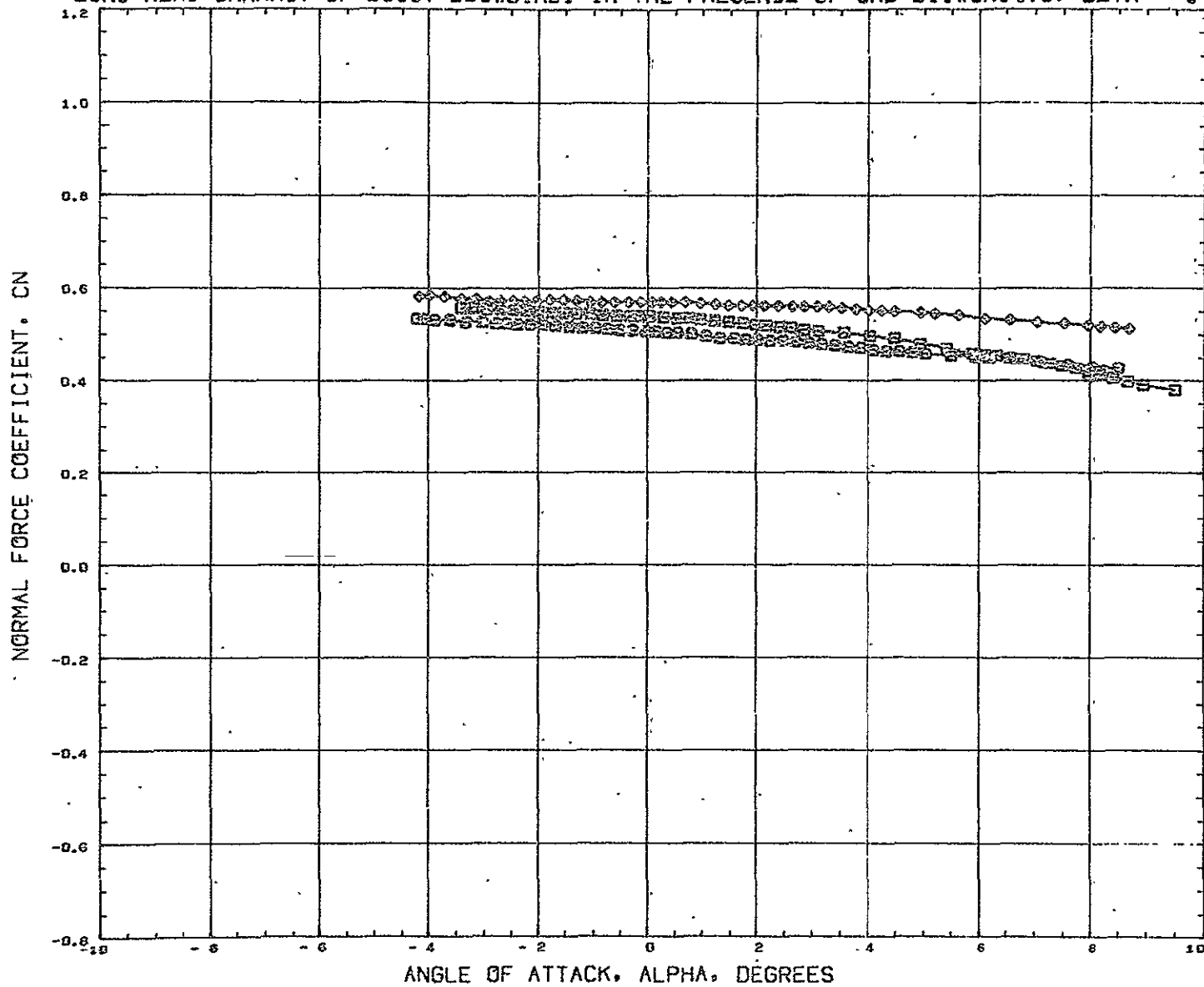


SYMBOL	SEPPQS	BETA	PARAMETRIC VALUES	ALPB	5.000
□	4.000	BETA	0.000	ALPB	5.000
◻	5.000	BETS	0.000	MACH	1.810
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YNRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

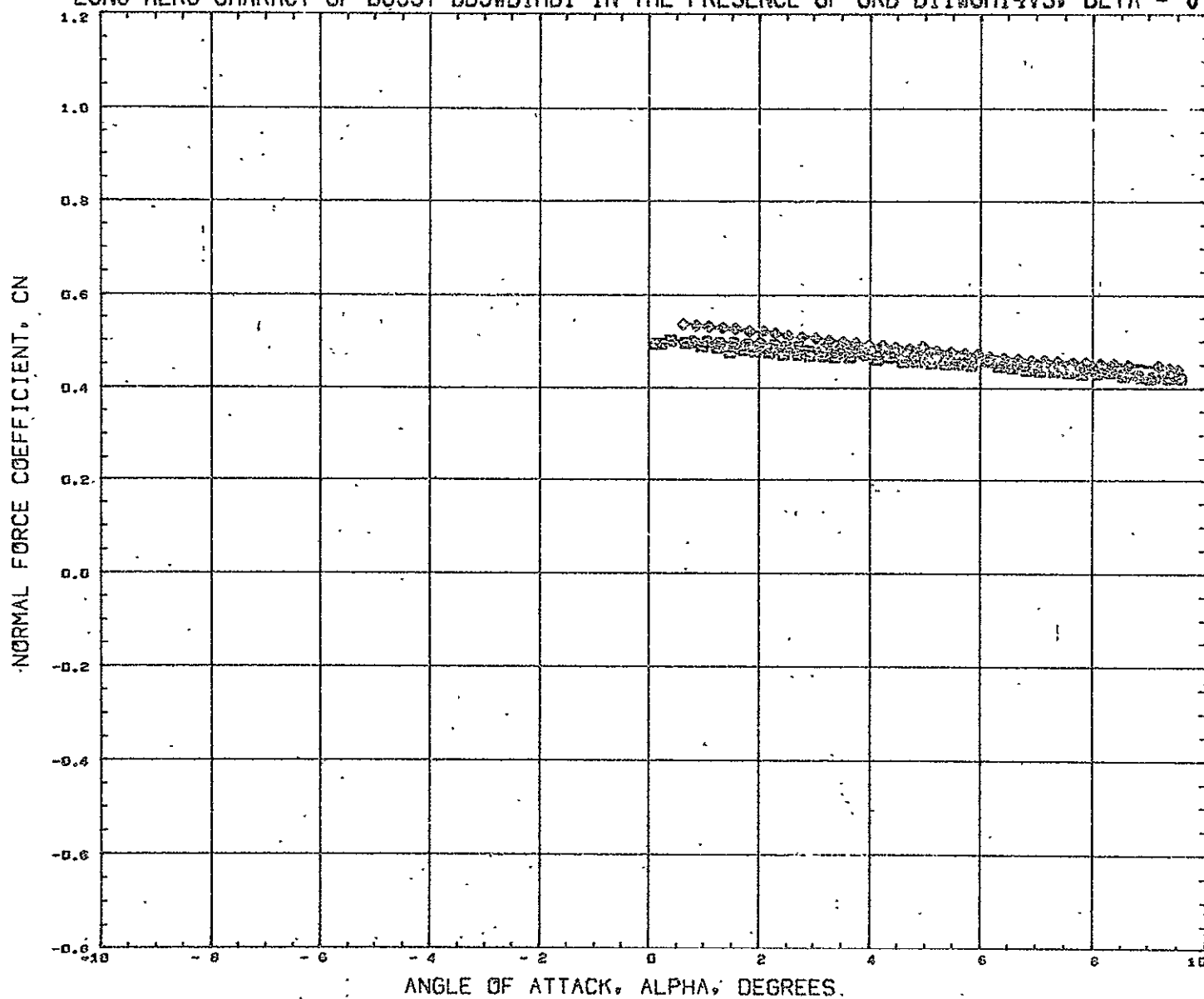


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	ALFB	5.000
□	8.000	BETB	0.000	NACH	1.810
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

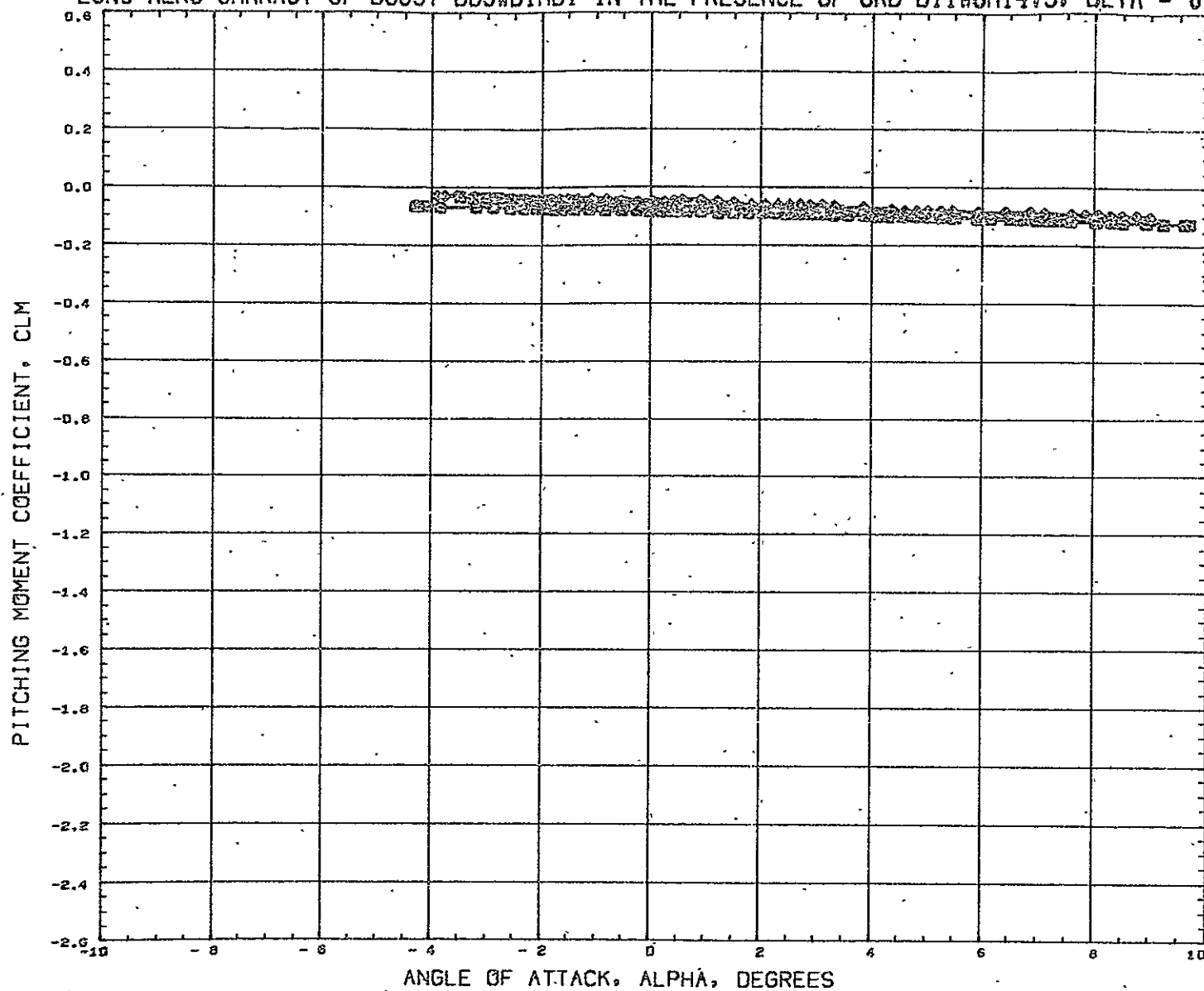


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	5.000
□	10.000	BETA	0.000	ALPB	5.000
□	11.000	BETB	0.000	HACH	1.010
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.6990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

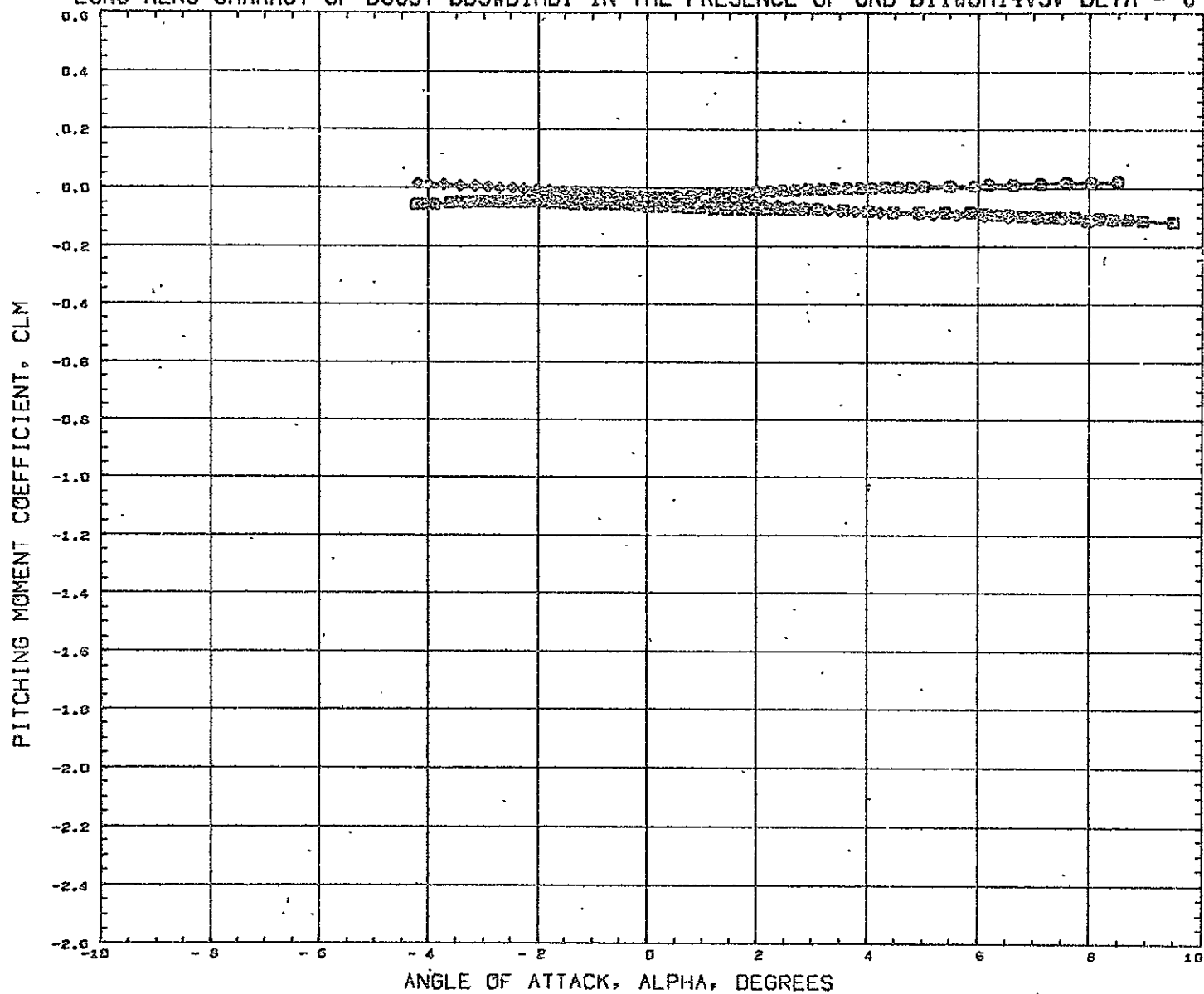


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	ALPB	5.000
□	5.000	BETB	0.000	NACH	1.810
○	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

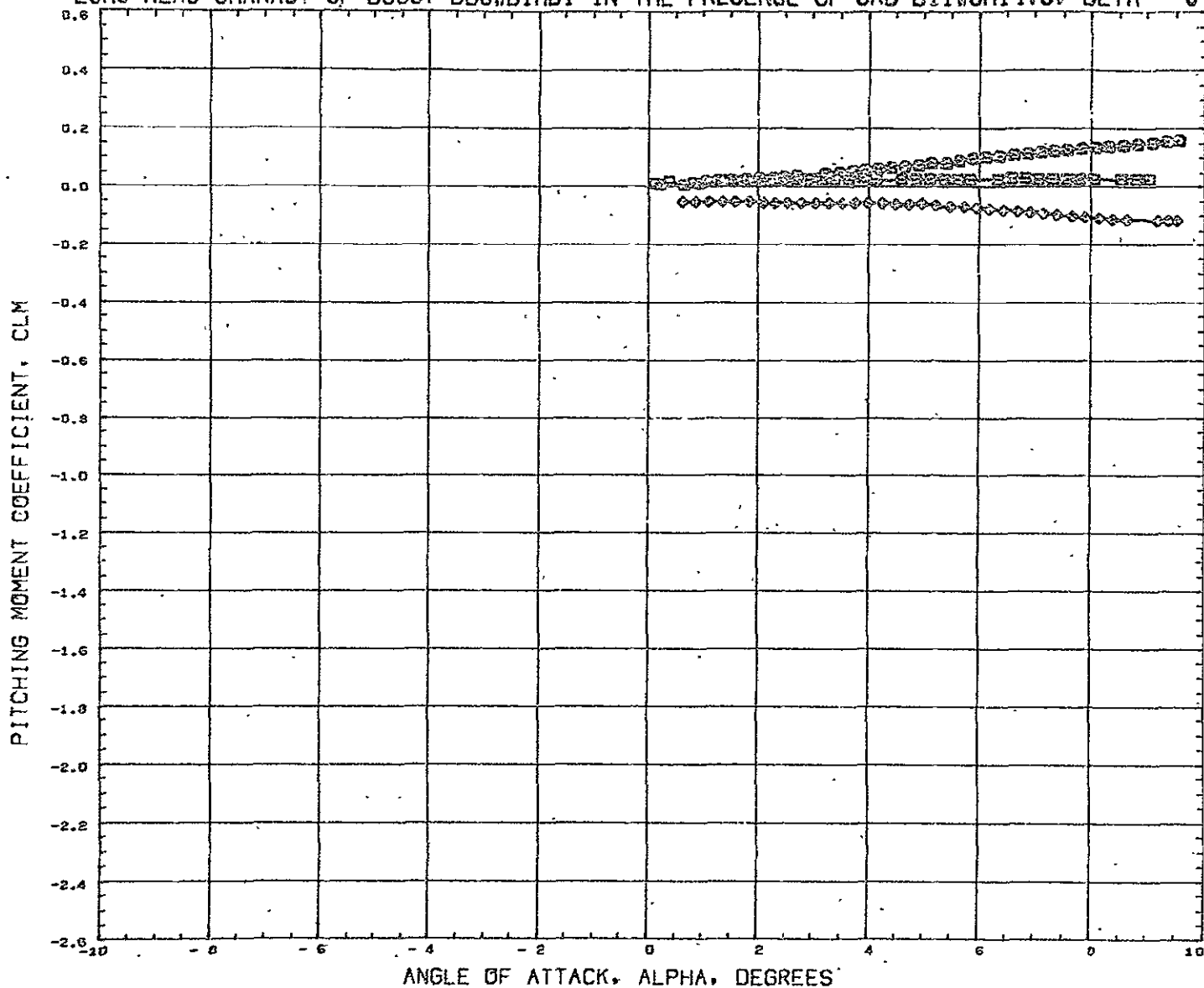


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	7.000	BETA	0.000	ALPB	5.000
□	0.000	BETB	0.000	NACH	1.010
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

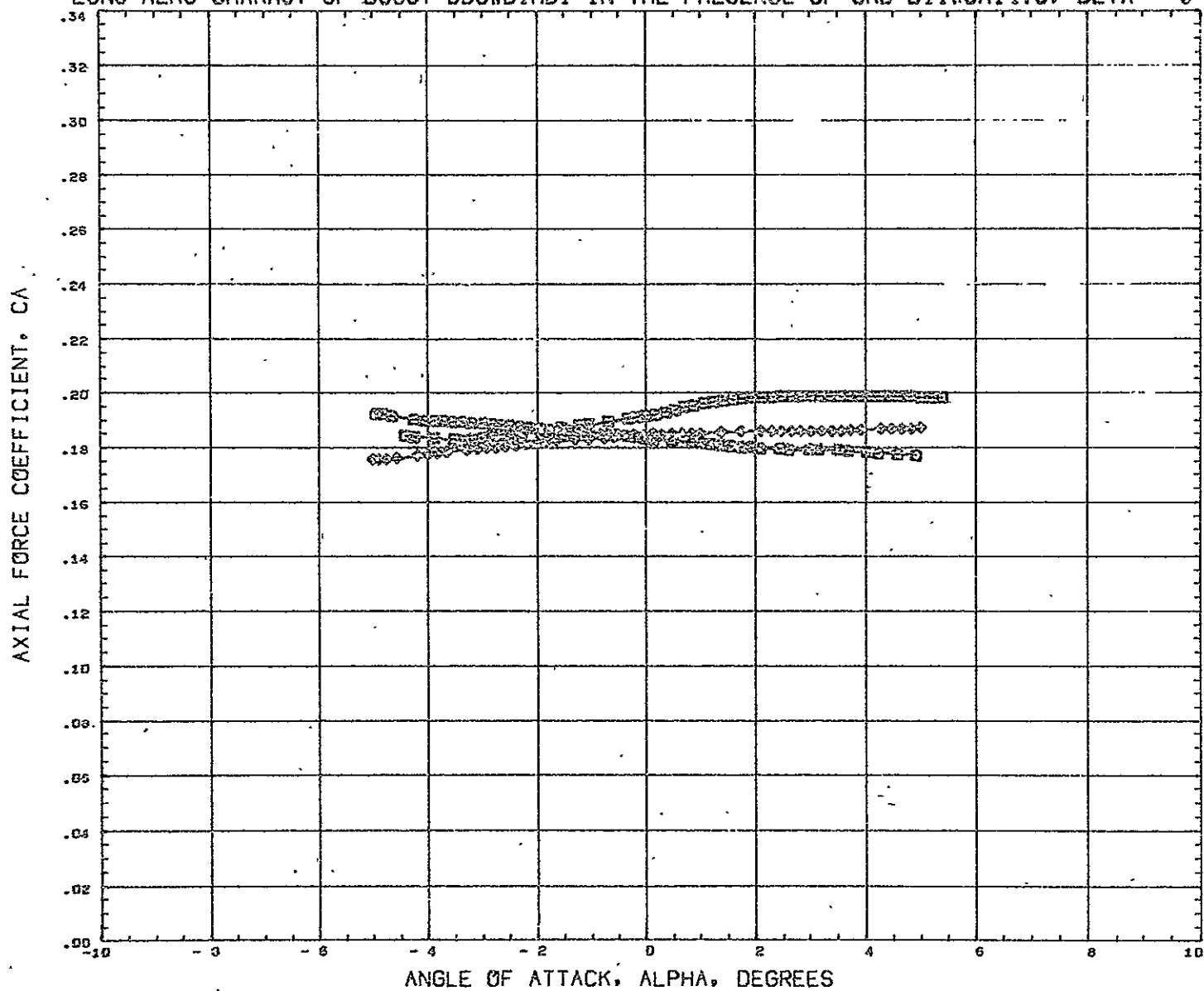


SYMBOL	SEPPDS	BETA	PARAMETRIC VALUES	ALFB	5.000
□	10.000	BETA	0.000	ALFB	5.000
□	11.000	BETA	0.000	HACH	1.810
◇	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8996	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



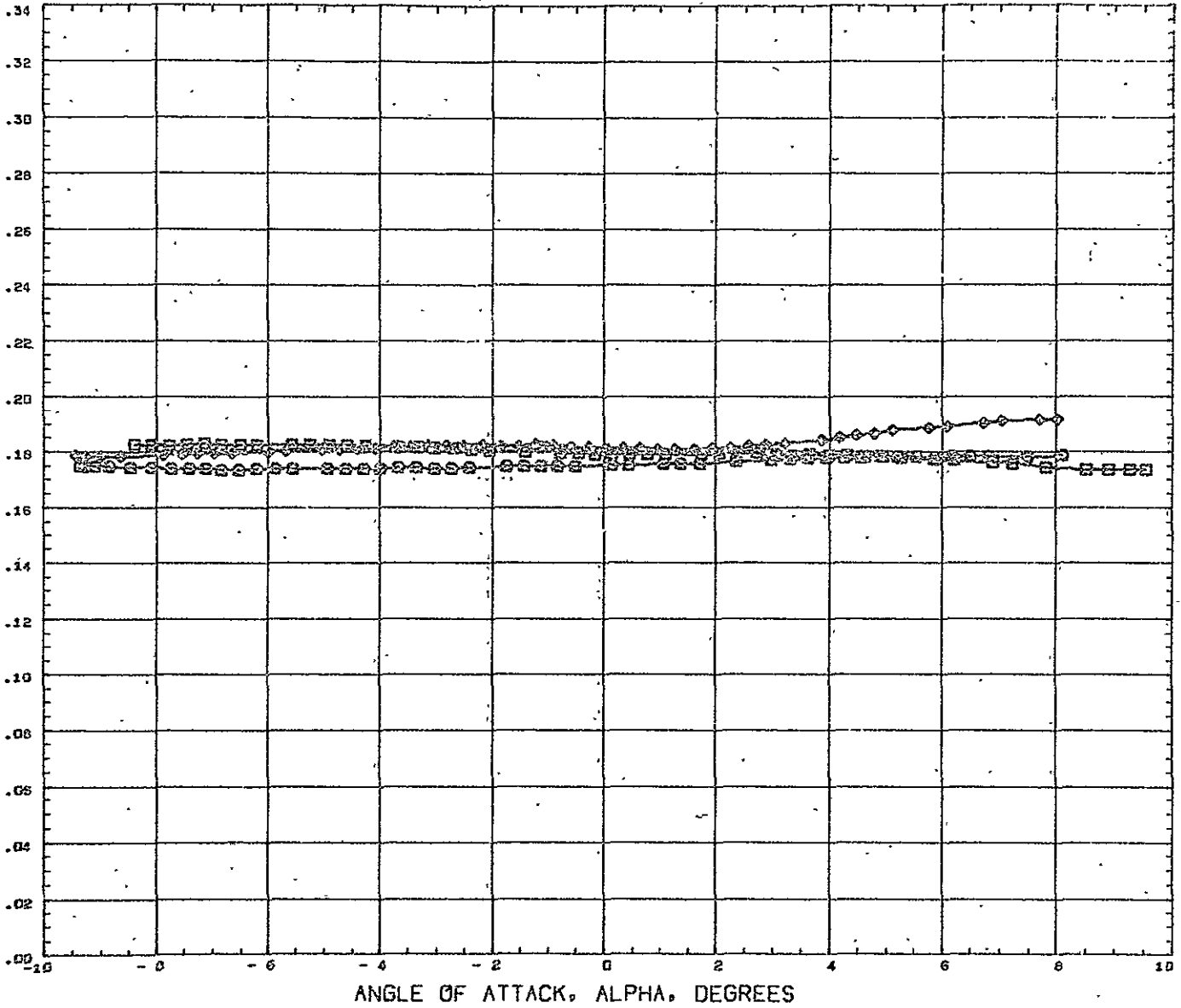
SYMBOL	SEPP05	BETA	PARAMETRIC VALUES	ALFB	0.000
□	1.000	BETA	0.000	MACH	2.990
◻	2.000	BETB	0.000		
◇	3.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

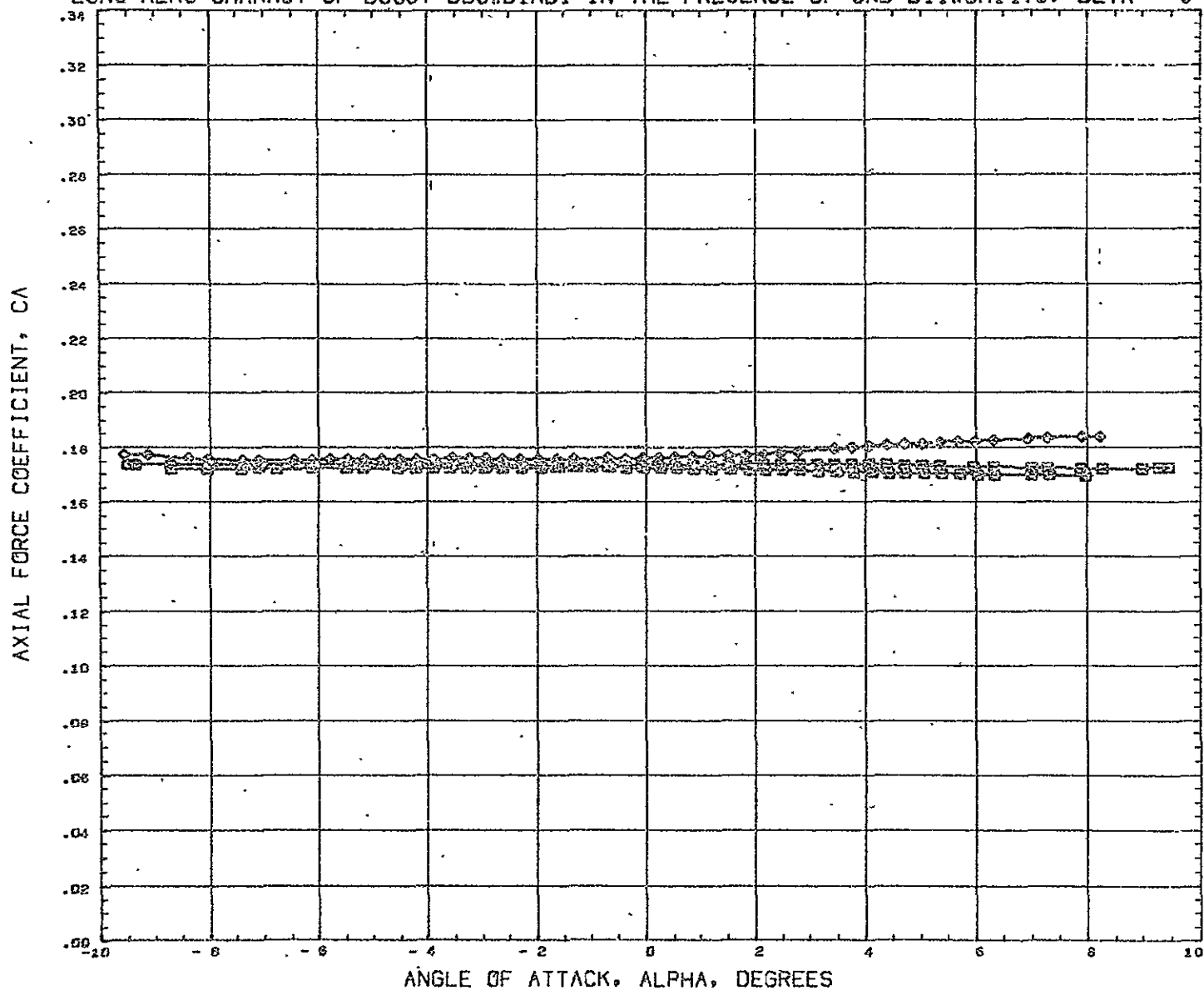
LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

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SYMBOL		SEFPOS		PARAMETRIC VALUES			REFERENCE INFORMATION		
○		4.000	BETA	0.000	ALPB	0.000	REFS	54.6580	SQ IN
□		5.000	BETS	0.000	NACH	2.990	REFL	2.9920	IN
◇		6.000					REFB	19.7000	IN
							XMRP	15.8990	IN
							YMRP	0.0000	IN
							ZMRP	2.0000	IN
							SCALE	0.0088	
REFERENCE FILE				.0000					

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

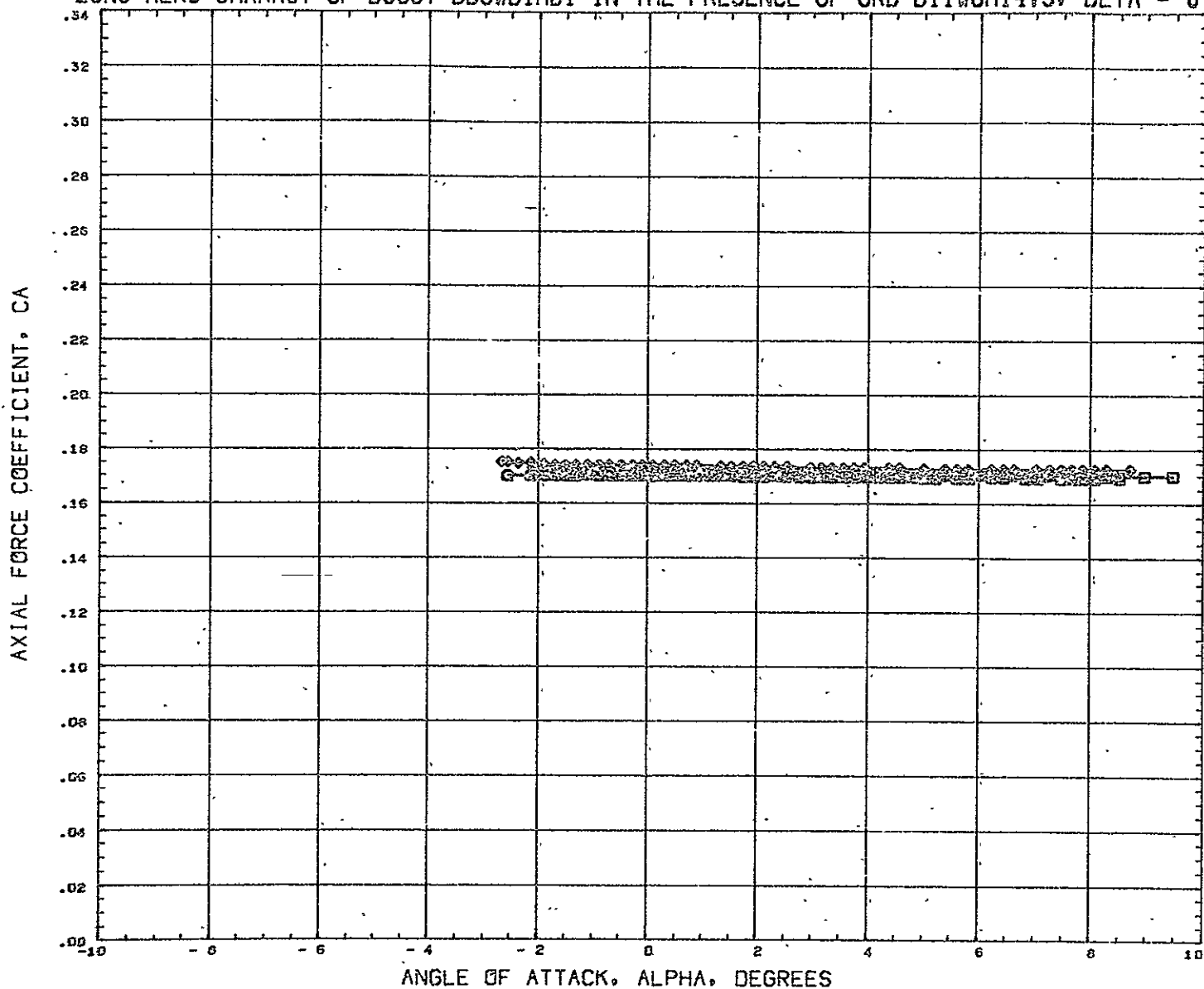


SYMBOL	SEFPOS	BETA	PARAMETRIC VALUES	ALPB	0.000
○	7.000	BETA	0.000	ALPB	0.000
□	0.000	BETB	0.000	NACH	2.990
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YNRP	0.0000	IN
ZNRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

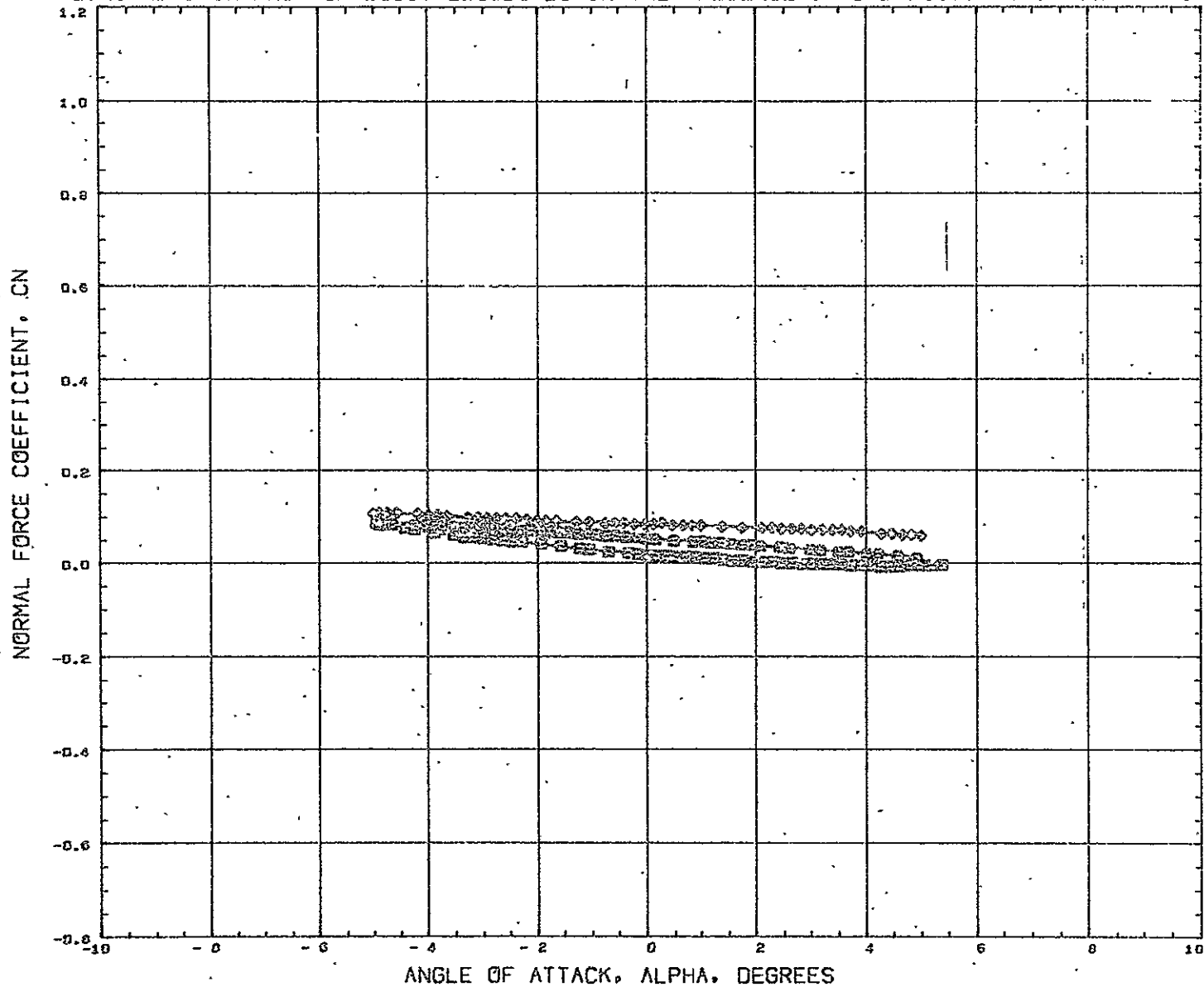


SYMBOL	SEPFOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	ALPB	0.000
◻	11.000	BETB	0.000	NACH	2.990
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8990	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

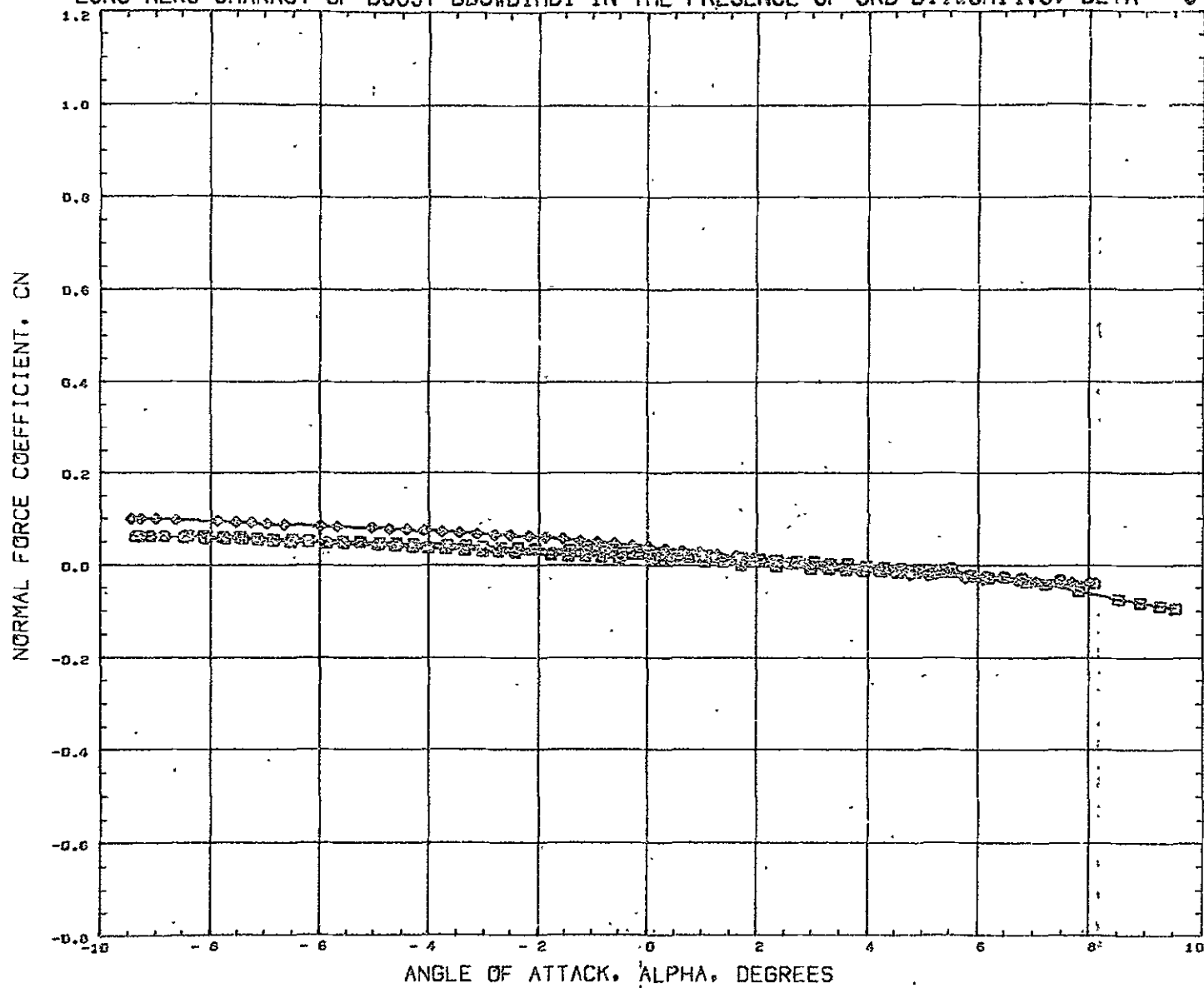
LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION	
○	1.000	BETA	0.000	ALPB	0.000	REFS	54.6580 SQ IN
□	2.000	BETB	0.000	MACH	2.990	REFL	2.9920 IN
◇	3.000					REFB	19.7000 IN
						XNRP	15.8990 IN
						YNRP	0.0000 IN
						ZNRP	2.0000 IN
						SCALE	0.0088

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

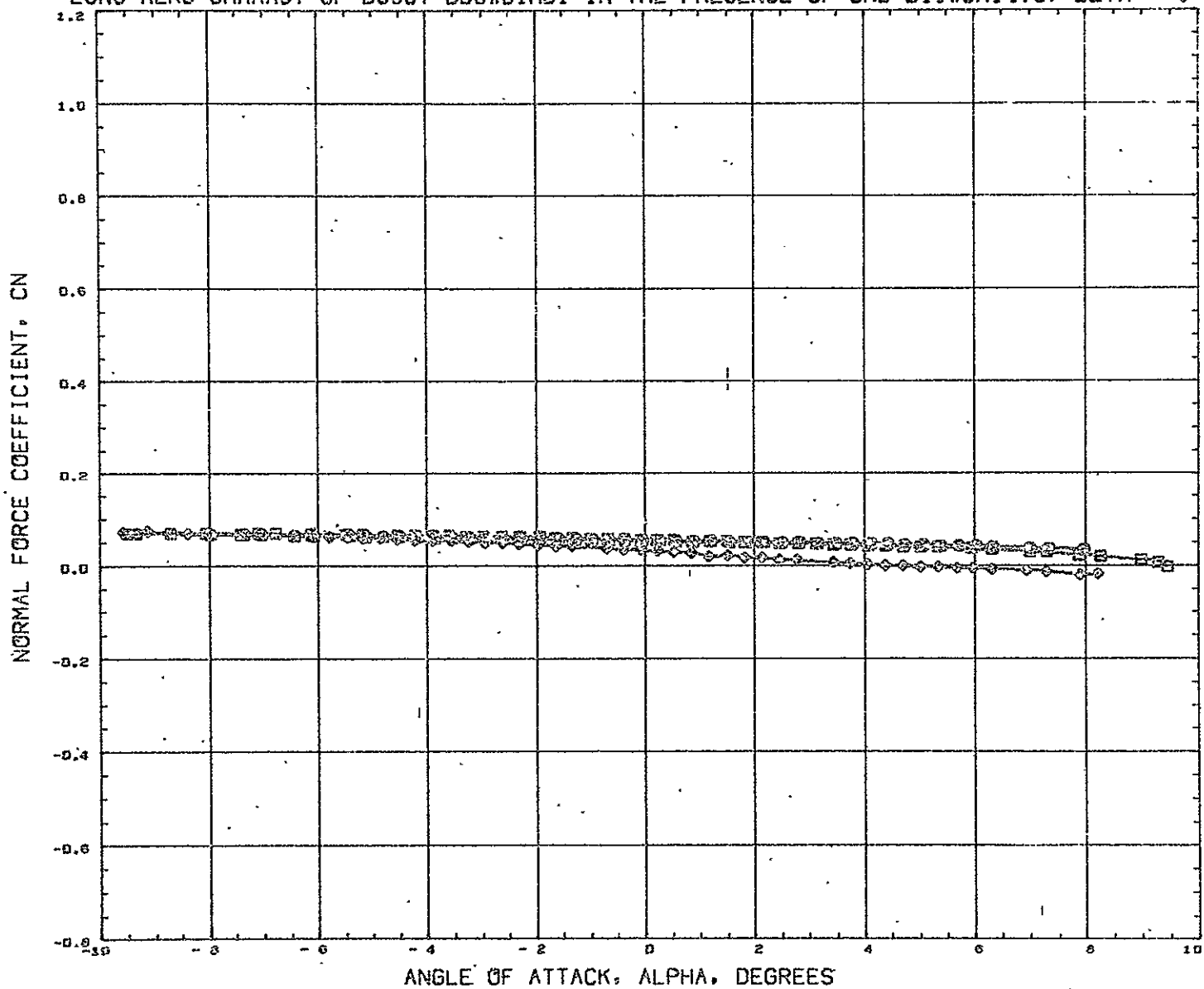


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	MACH
○	4.000	0.000	0.000	0.000	2.990
□	5.000	0.000	0.000	0.000	2.990
◇	6.000	0.000	0.000	0.000	2.990

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

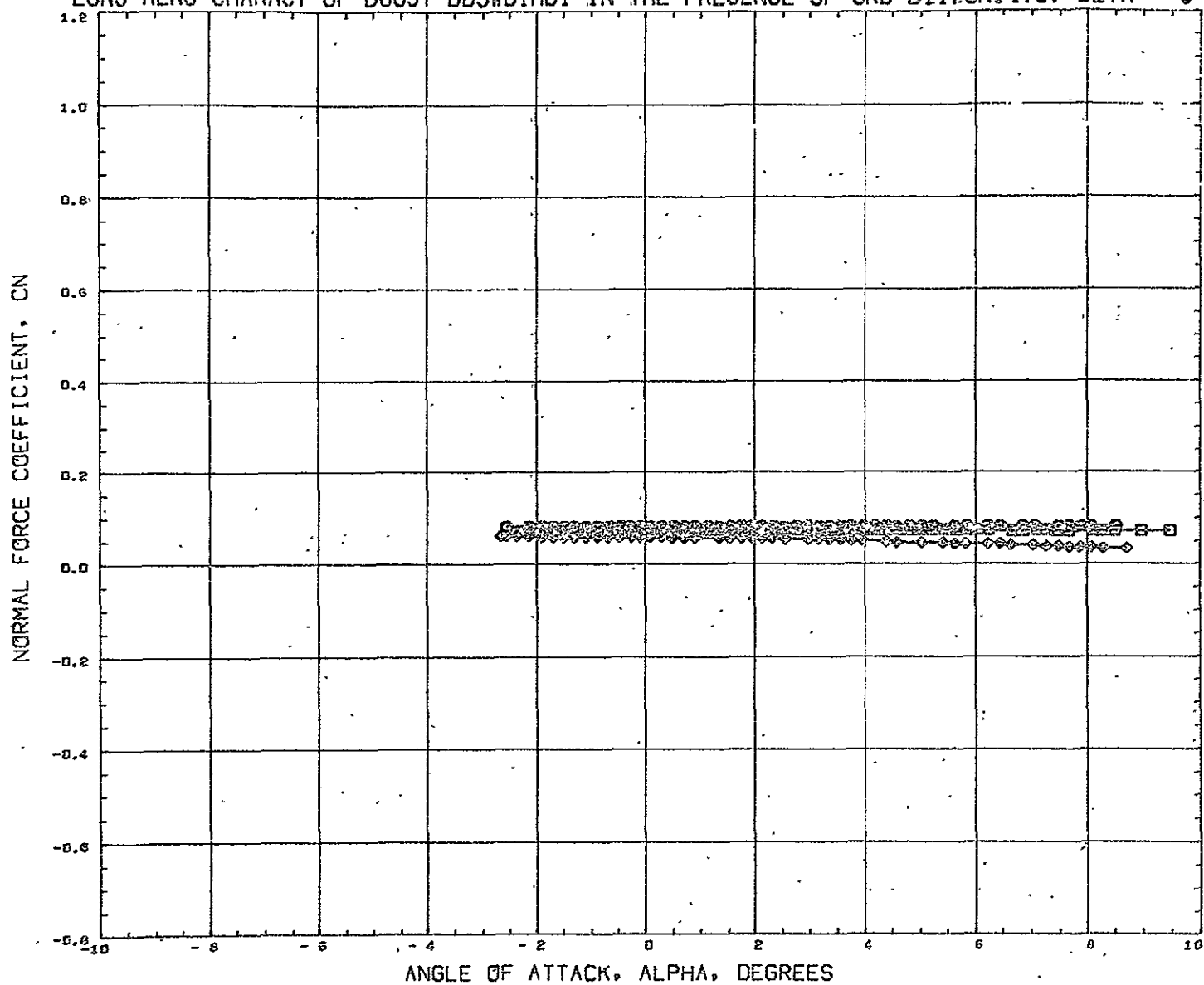


SYMBOL	SEFFOS	PARAMETRIC VALUES
□	7.000	BETA 0.000 ALPB 0.000
◻	8.000	BETB 0.000 NACH 2.990
◇	9.000	

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0038	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

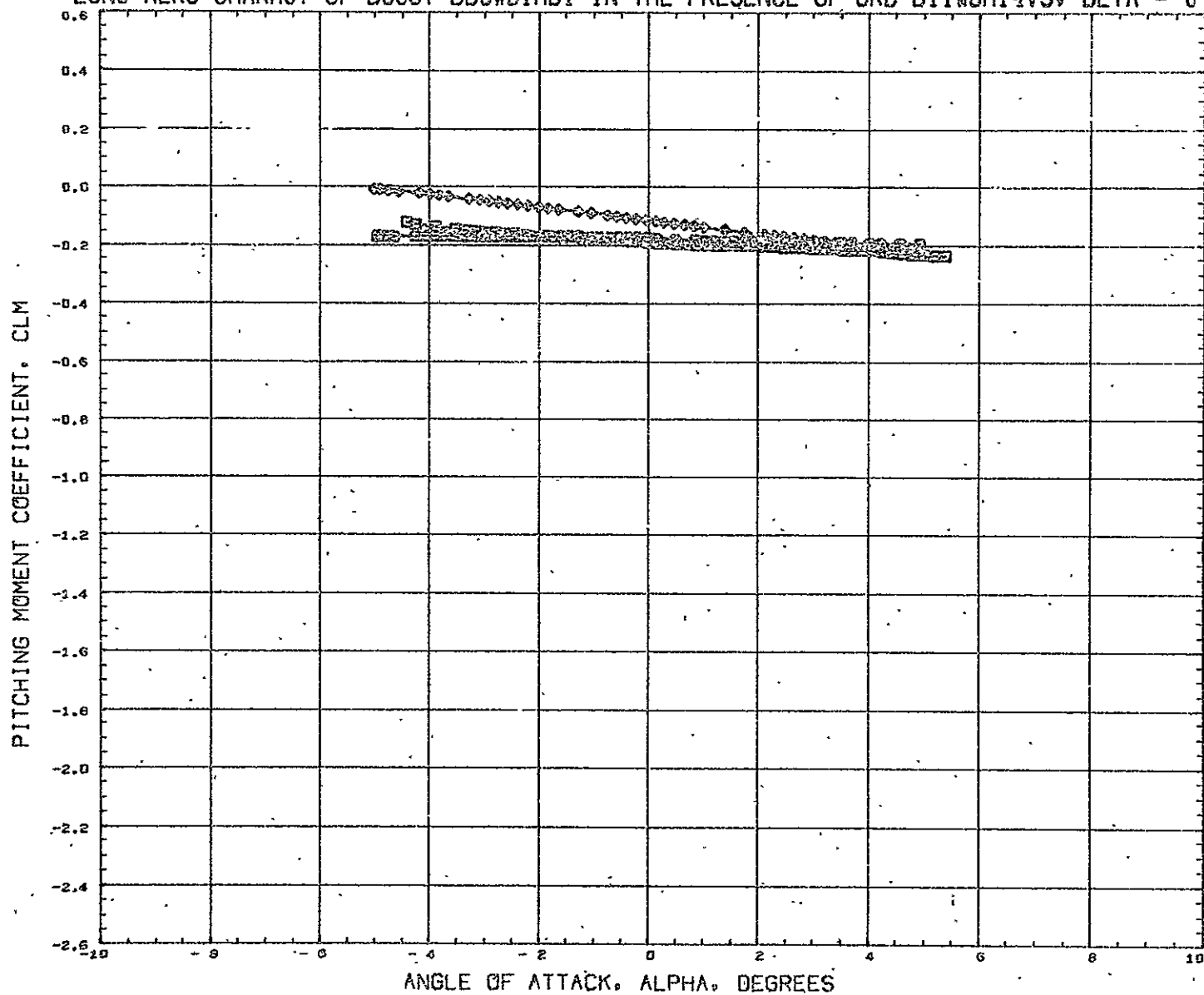


SYMBOL	SEPPOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	ALPB	0.000
□	11.000	BETB	0.000	HACH	2.990
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YNRP	0.0000	IN
ZNRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

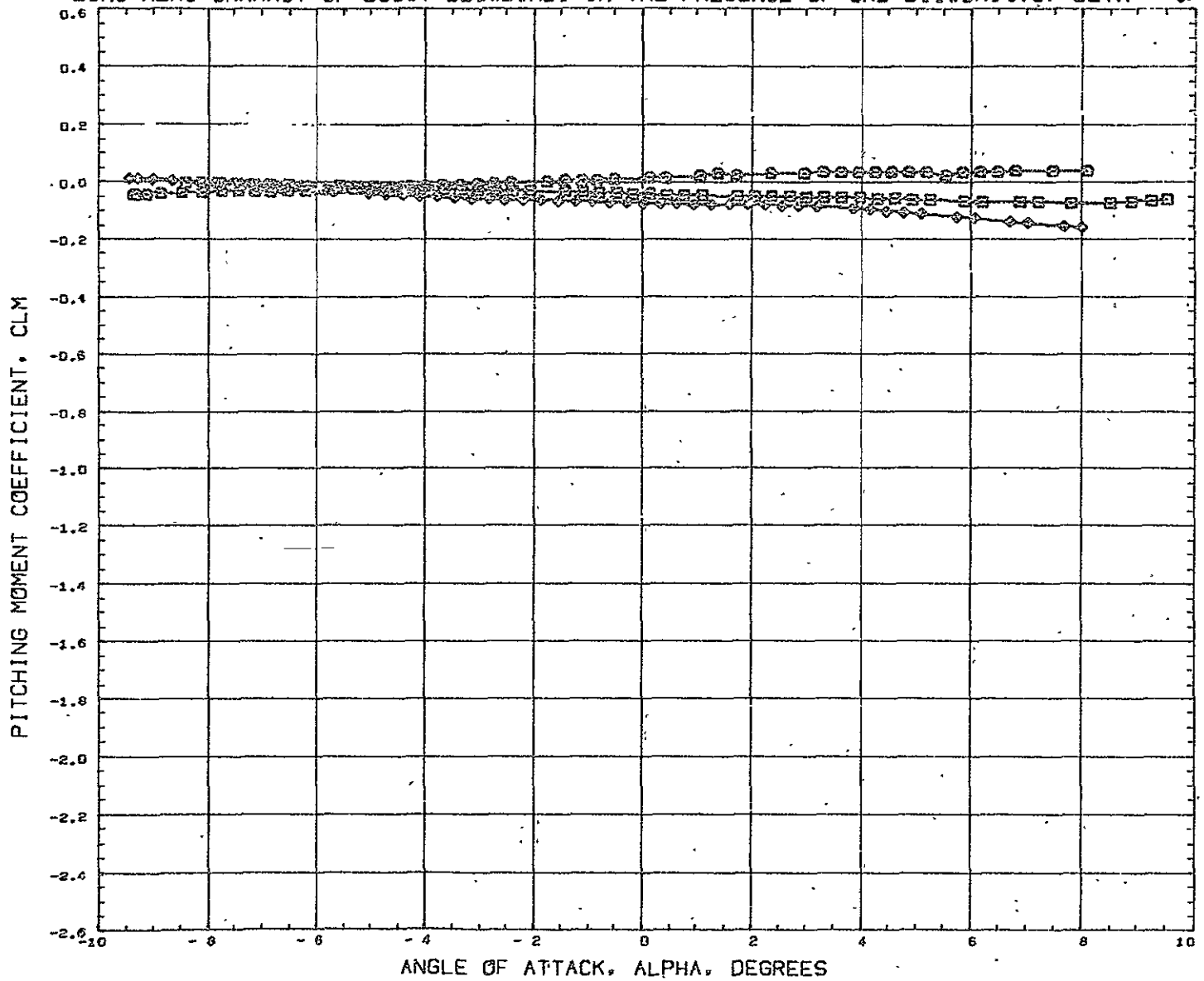


SYMBOL	SCFFOS	PARAMETRIC VALUES
□	1.000	BETA 0.000 ALPB 0.000
○	2.000	BETB 0.000 MACH 2.990
◇	3.000	

REFERENCE INFORMATION		
REFS	54.6580	SG IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YNRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0.

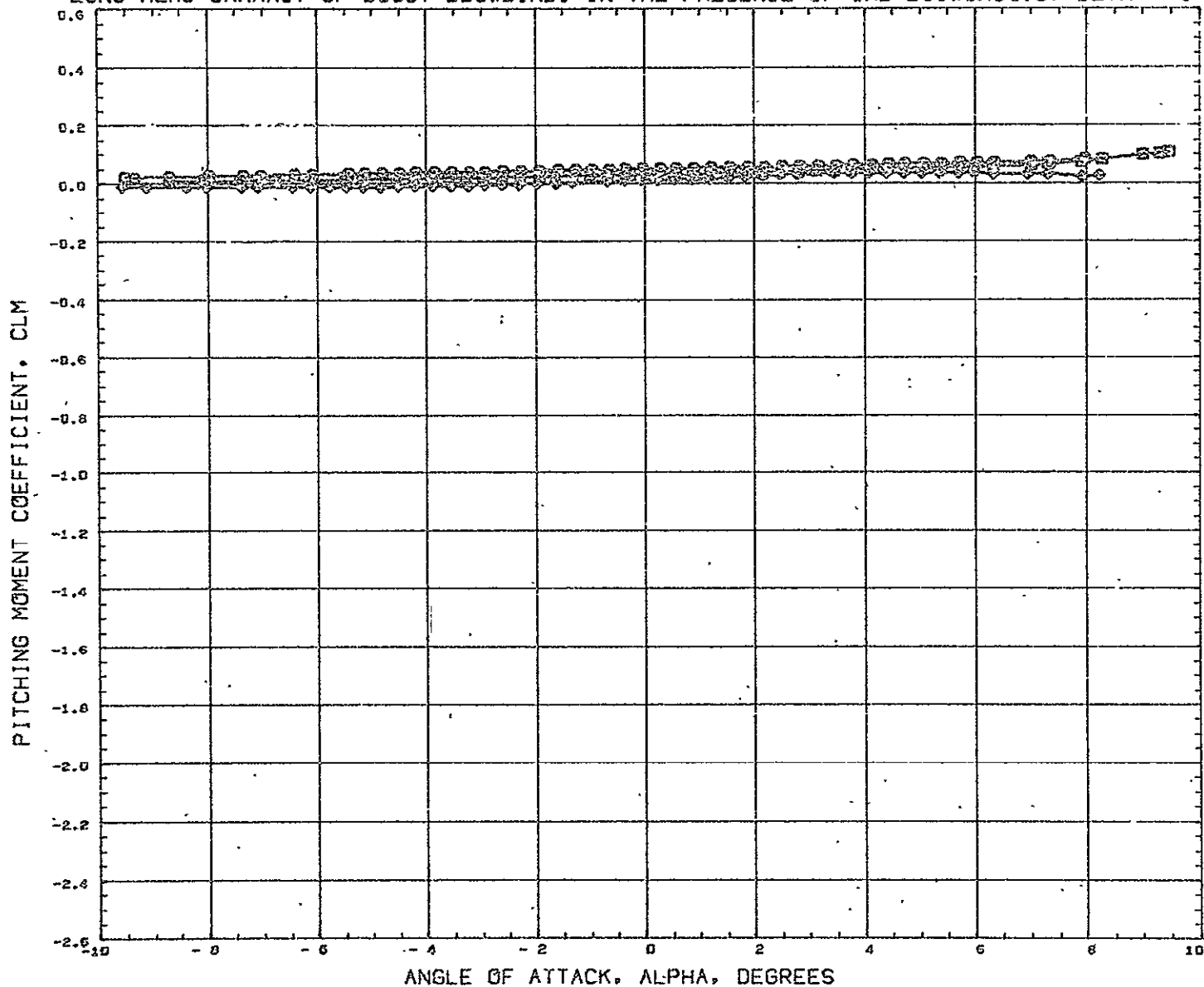


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	ALPB	0.000
□	5.000	BETB	0.000	NACH	2.990
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	sq IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRF	15.8990	IN
YNRF	0.0000	IN
ZNRF	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

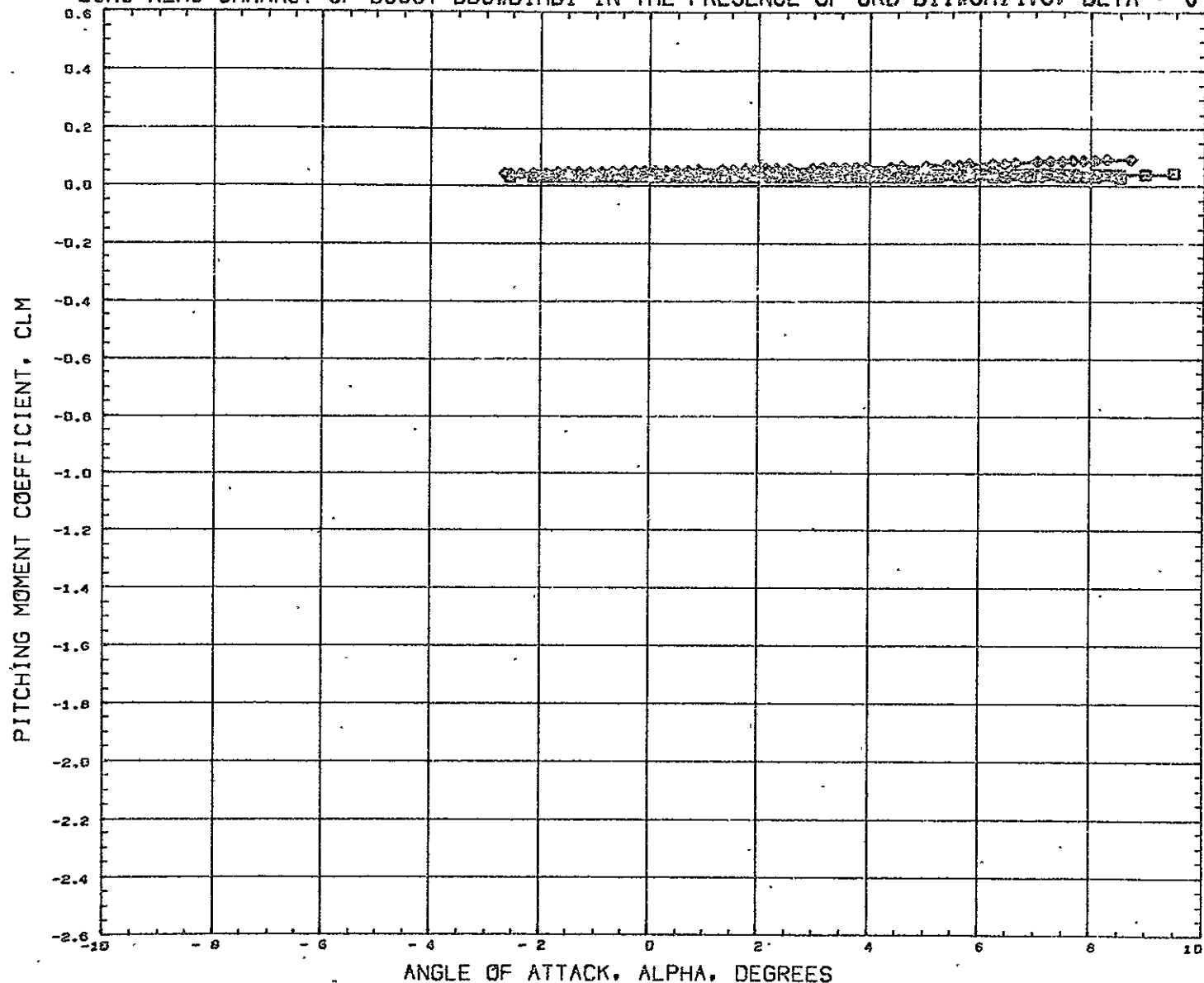


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	ALPB	0.000
□	8.000	BETB	0.000	MACH	2.990
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

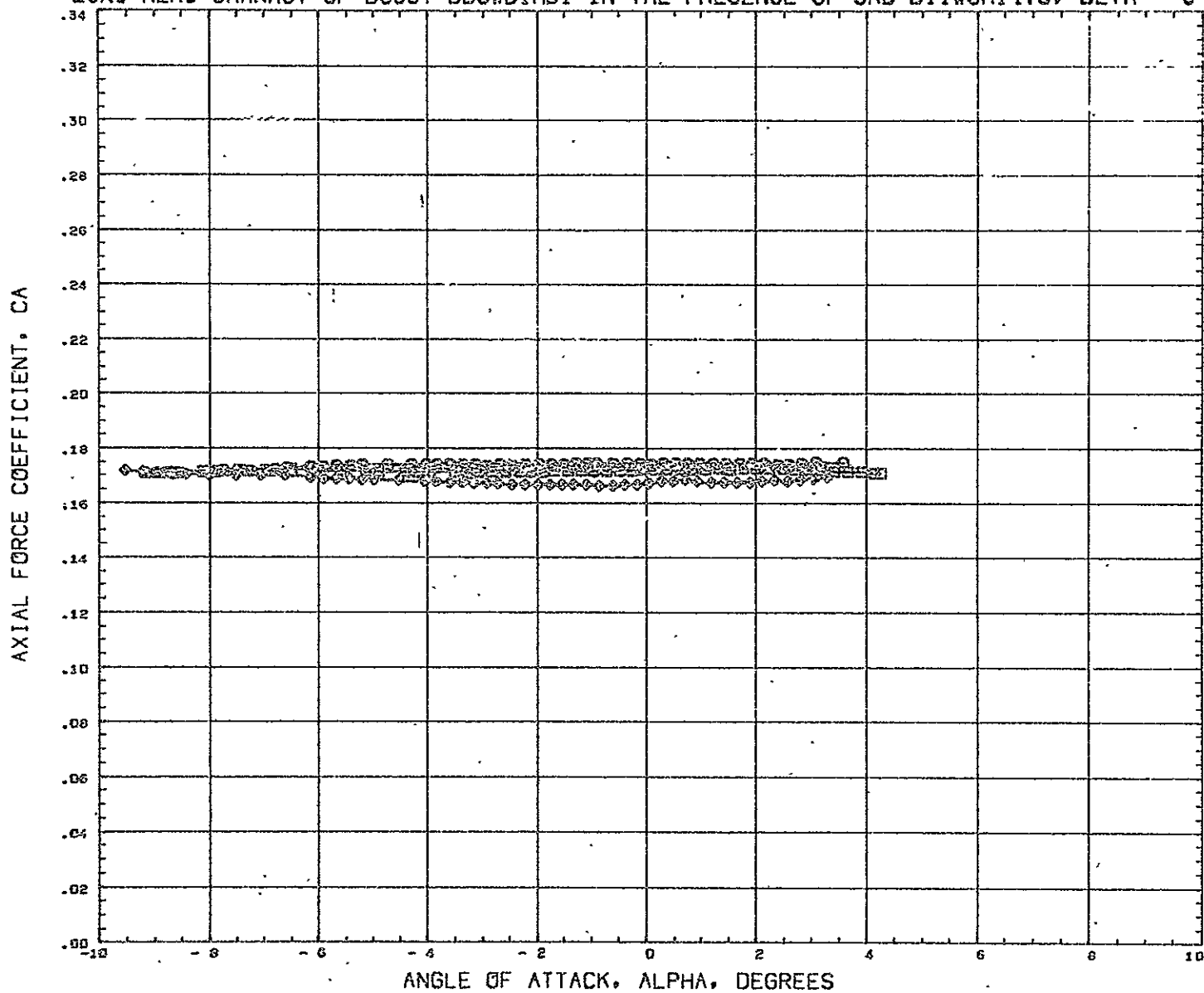
REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	10.000	BETA	0.000	ALPB	0.000	REFS	54.6580	50 IN
□	11.000	BETB	0.000	MACH	2.990	REFL	2.9920	IN
◇	12.000					REFB	19.7000	IN
						XMRP	15.8990	IN
						YMRP	0.0000	IN
						ZMRP	2.0000	IN
						SCALE	0.0088	
REFERENCE FILE .0000								

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

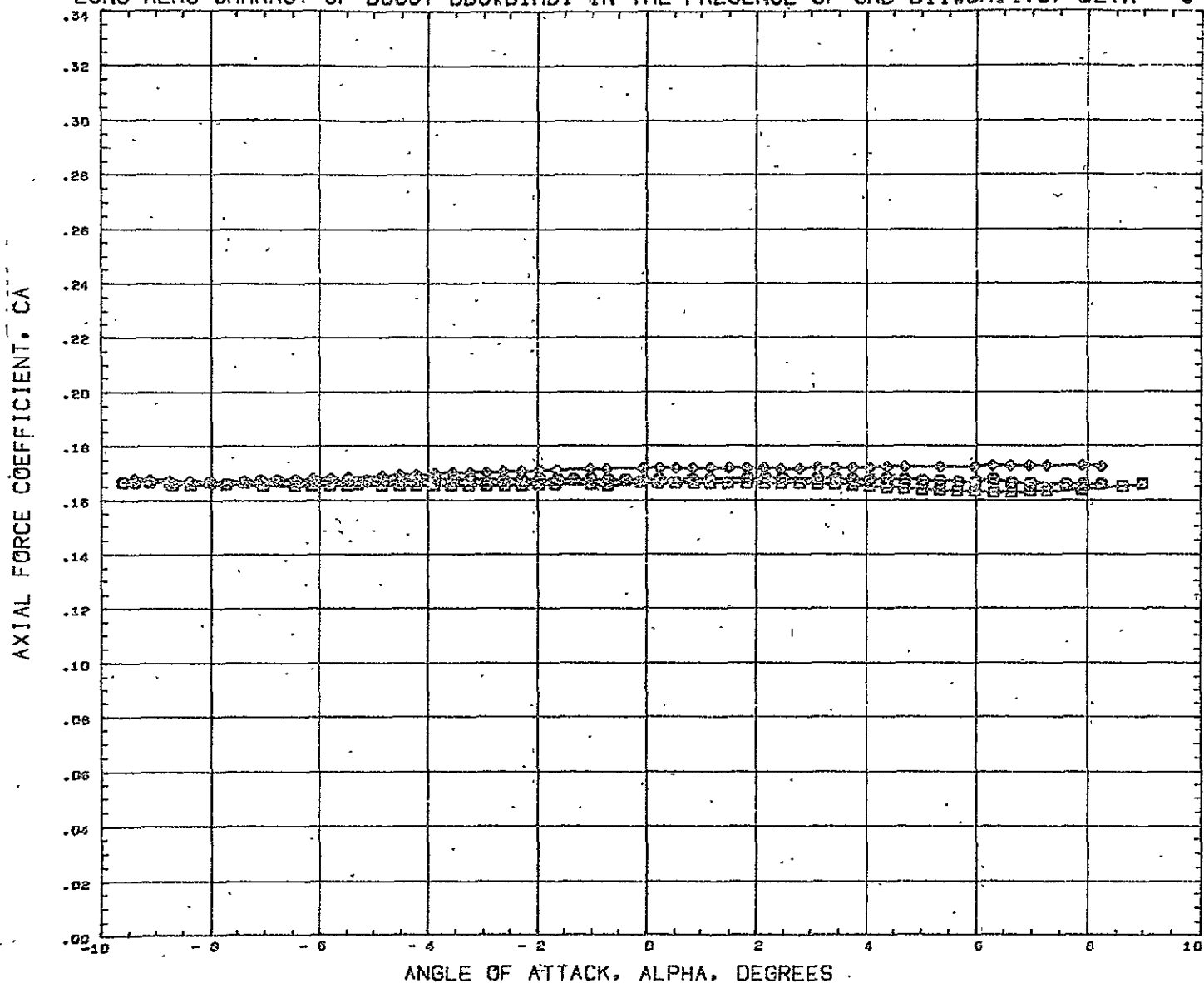


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	ALF8	- 5.000
□	5.000	BET8	0.000	NACH	2.990
○	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REF8	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACTER OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

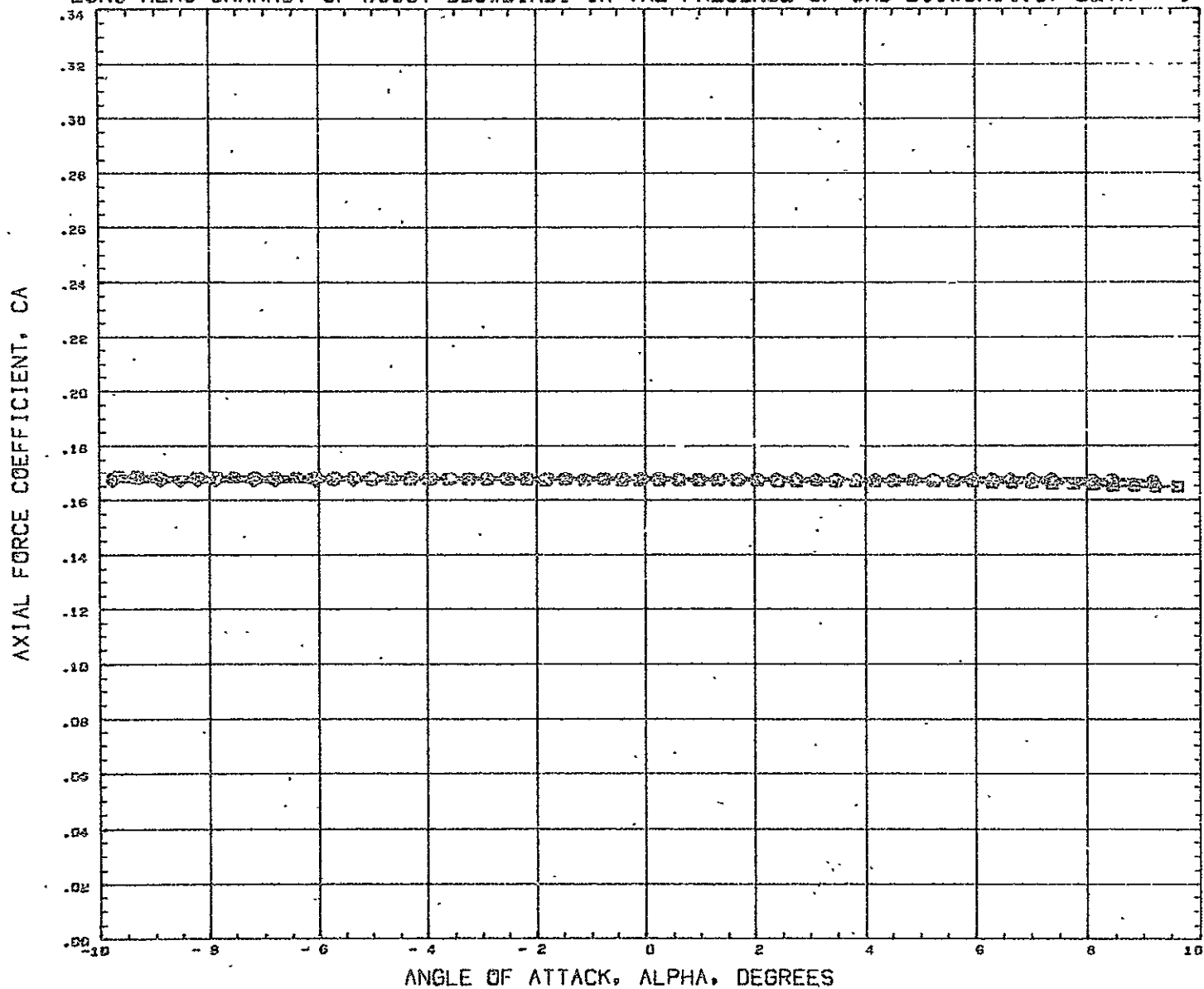


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	ALPB	- 5.000
◻	8.000	BETB	0.000	MACH	2.990
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFS	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

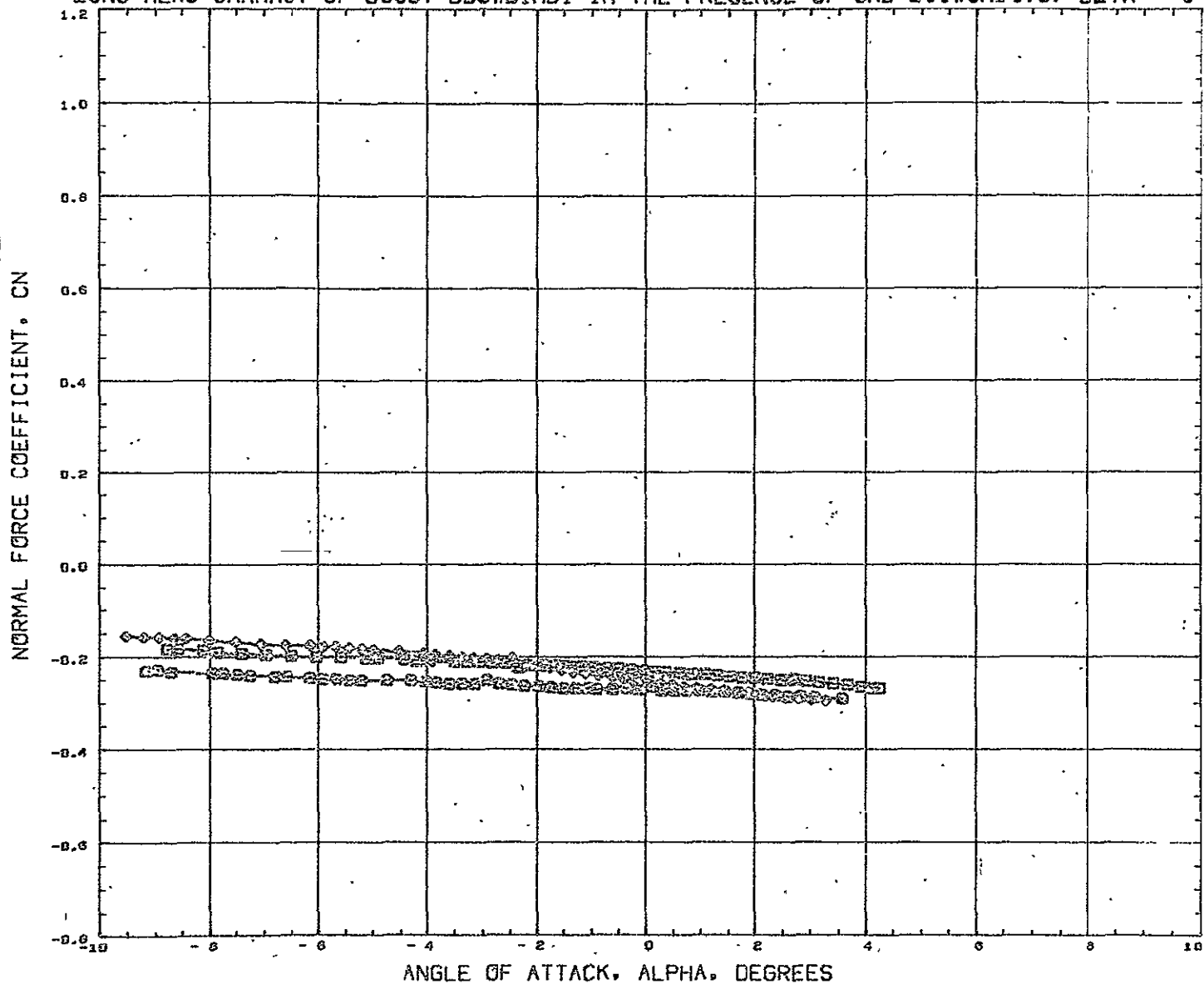


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	ALPB	5.000
□	11.000	BETB	0.000	NACH	2.990
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5; BETA = 0

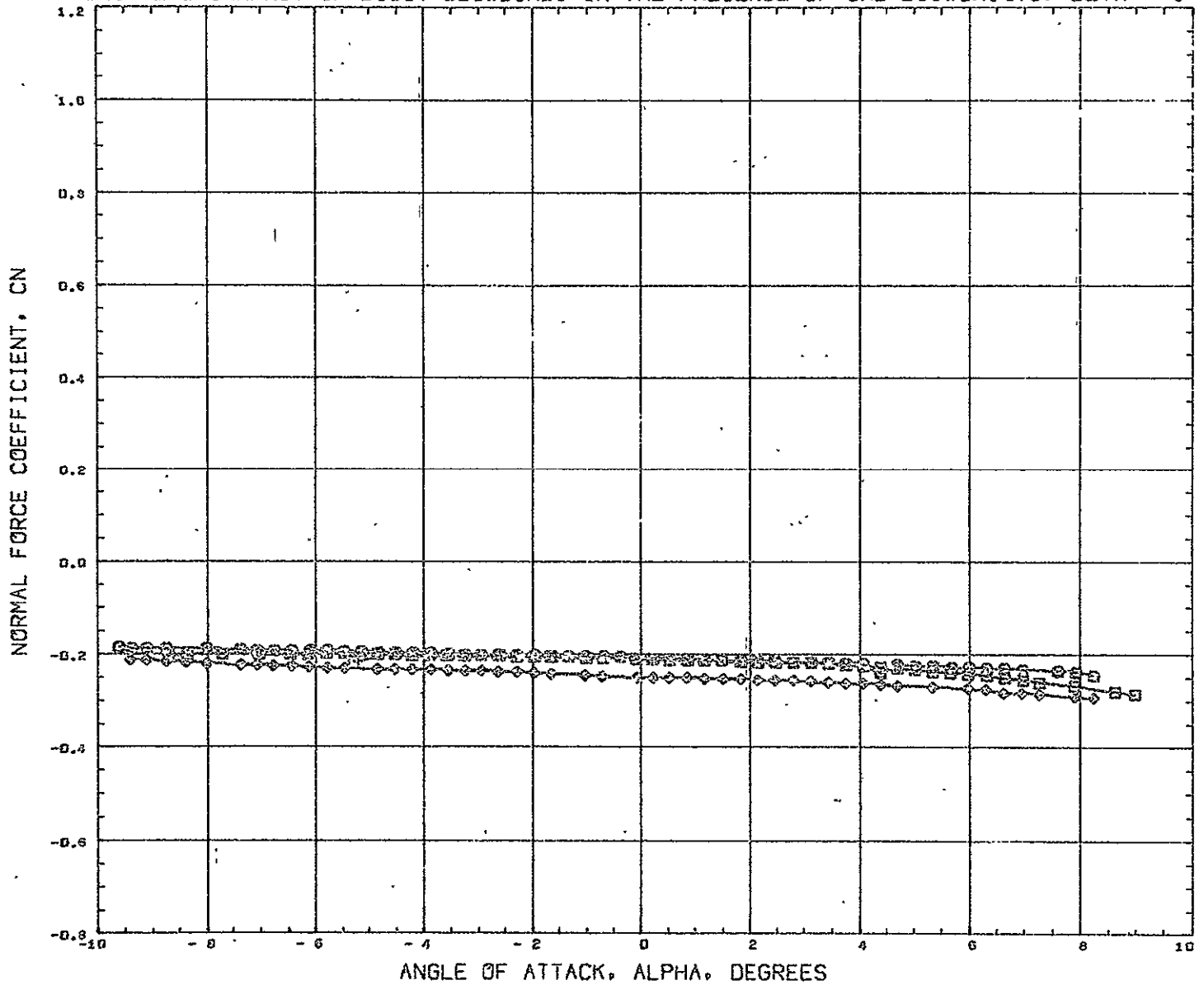


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	ALPB
□	4.000	BETA	0.000	ALPB	- 5.000
◇	5.000	BETB	0.000	NACH	2.990
○	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

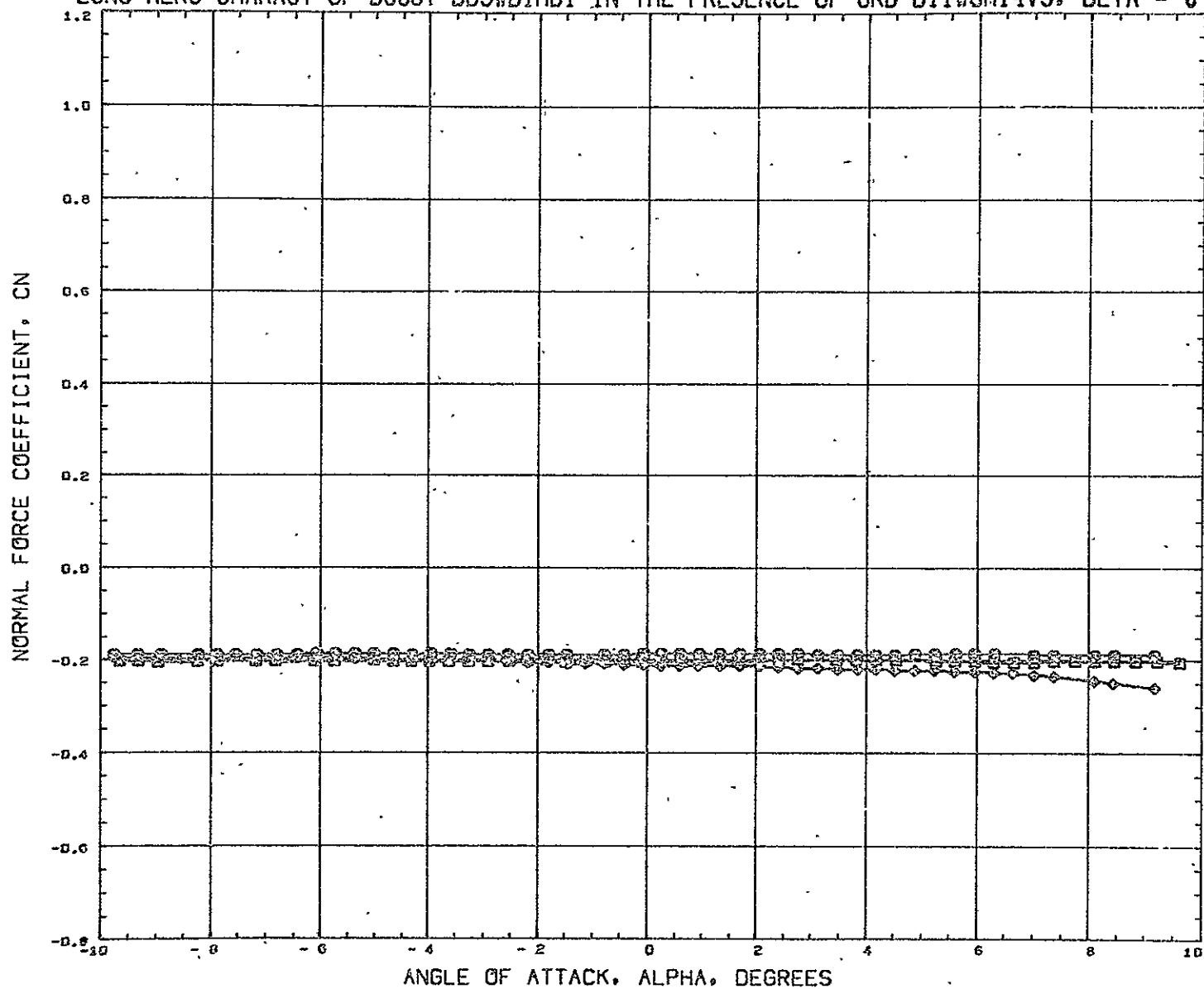


SYMBOL	SEPPQS	PARAMETRIC VALUES
□	7.000	BETA 0.000 ALPB - 5.000
◇	8.000	BETB 0.000 MACH 2.990
○	9.000	

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

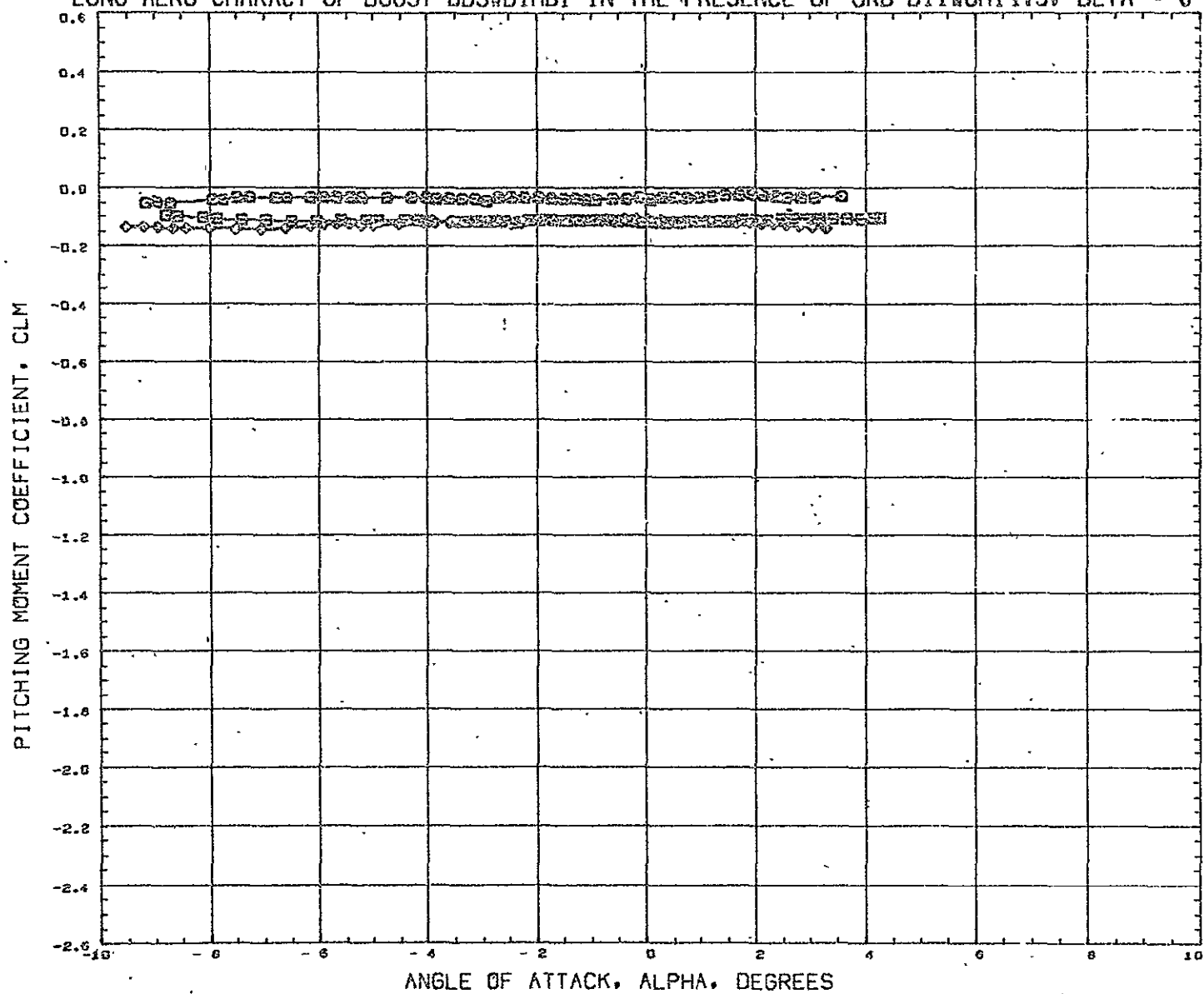


SYMBOL	SEPP0S	PARAMETRIC VALUES
□	10.000	BETA 0.000 ALPB - 5.000
◇	11.000	BETA 0.000 MACH 2.990
○	12.000	

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8950	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

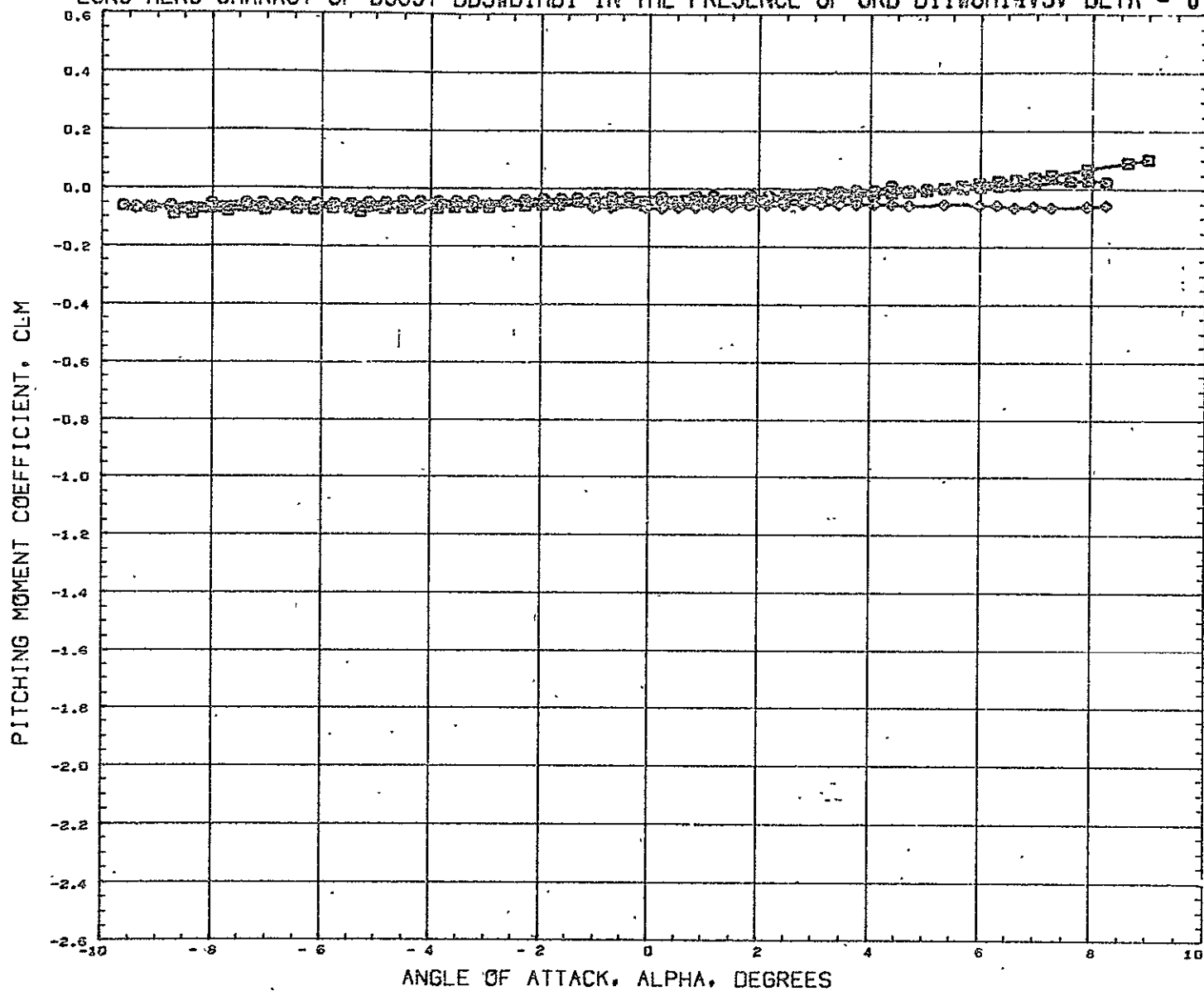
LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
□	4.000	BETA	0.000 ALFB - 5.000	REFS 54.6580 SQ IN
◇	5.000	BETB	0.000 MACH 2.990	REFL 2.9920 IN
○	6.000			REFB 19.7000 IN
				XMRP 15.8990 IN
				YMRP 0.0000 IN
				ZMRP 2.0000 IN
				SCALE 0.0088

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

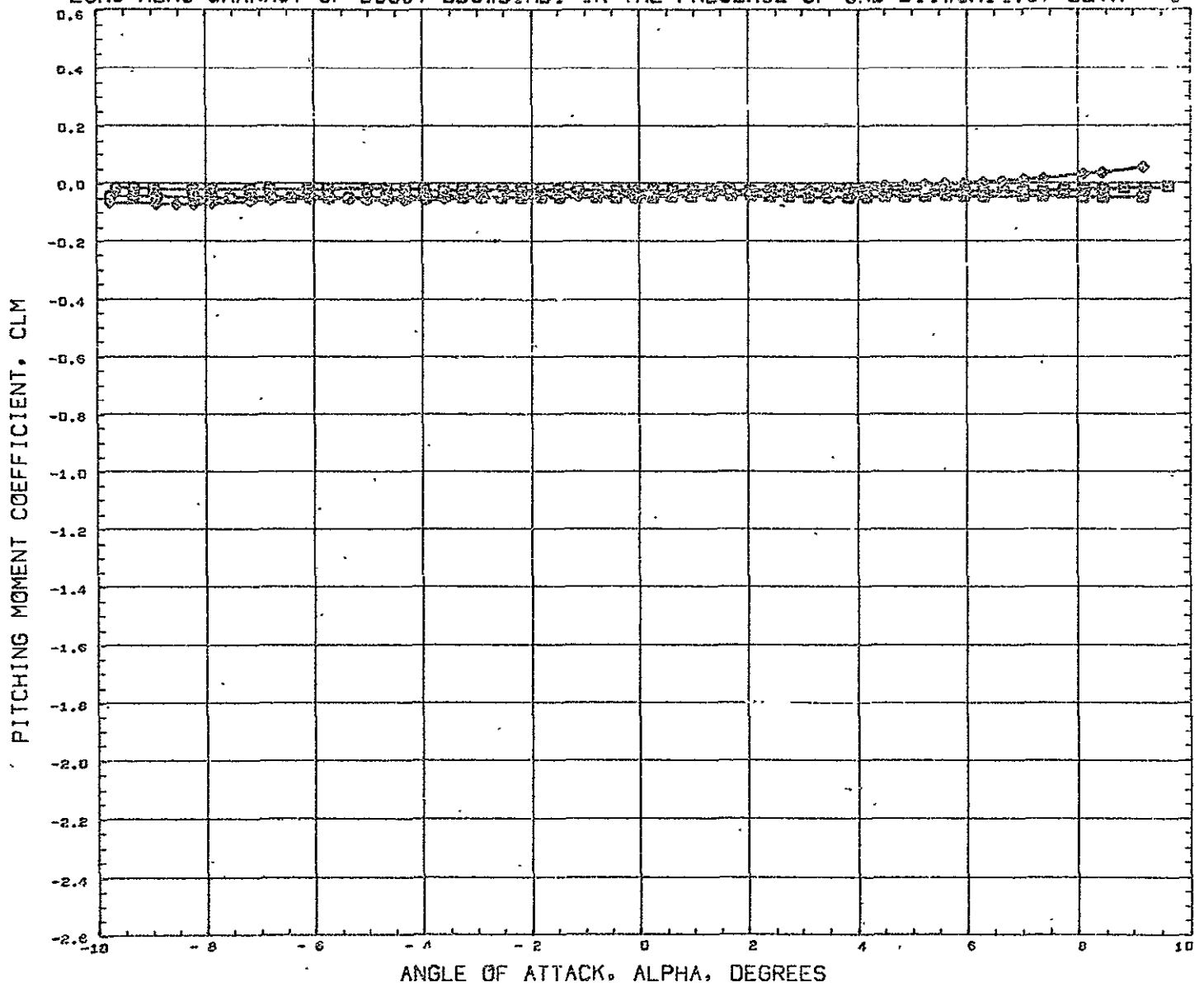


SYMBOL	SEFFOS	PARAMETRIC VALUES
□	7.000	BETA 0.000 ALFB - - 5.000
◇	8.000	BETB 0.000 MACH 2.990
○	9.000	

REFERENCE FILE .0000

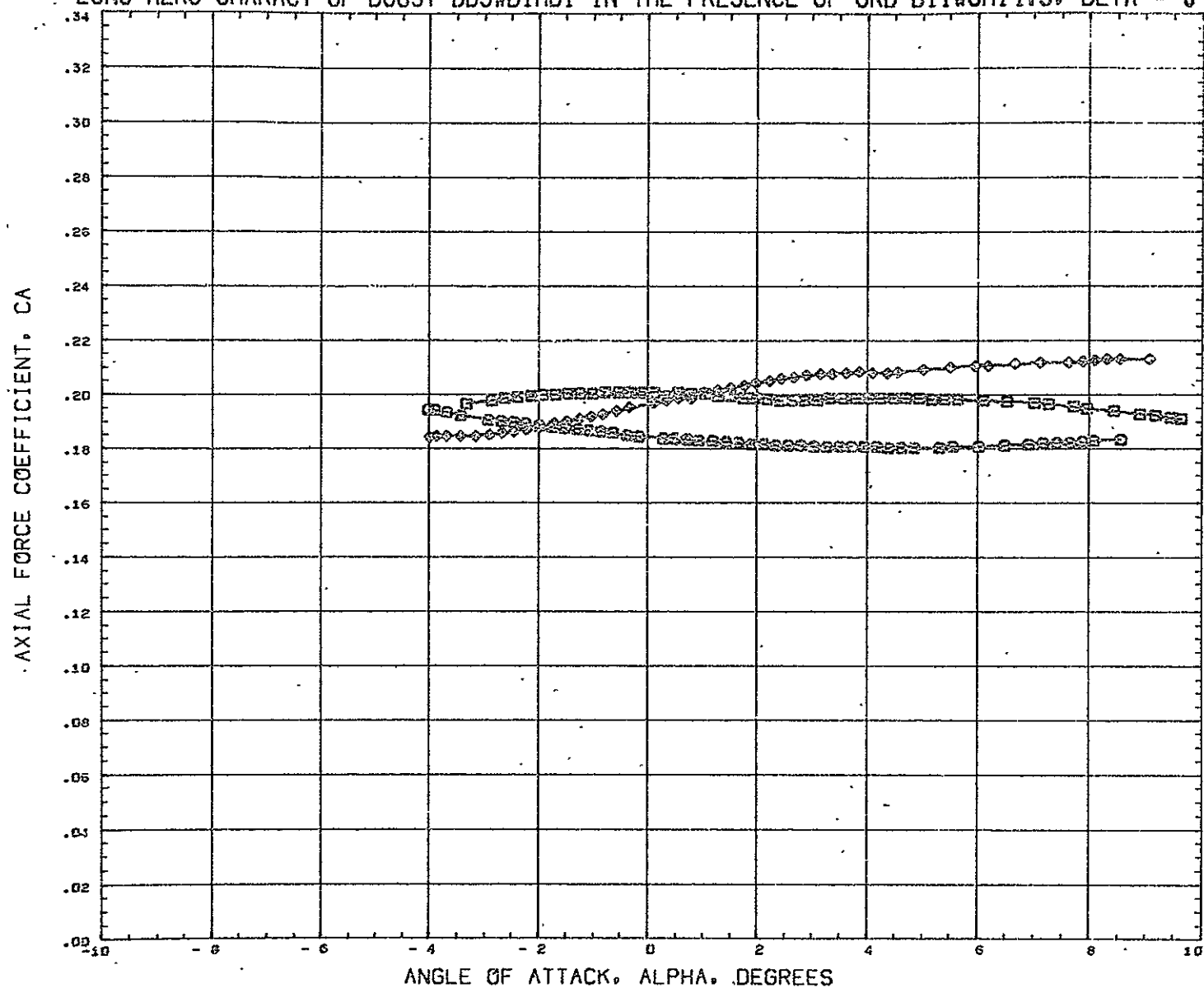
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0098	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
□	10.000	BETA	0.000	ALPB	- 5.000	REFS	54.6580	SQ IN
□	11.000	BETB	0.000	HACH	2.990	REFL	2.9920	IN
◇	12.000					REFB	19.7000	IN
						XMRP	15.8990	IN
						YNRP	0.0000	IN
						ZMRP	2.0000	IN
						SCALE	0.0088	
		REFERENCE FILE .0000						

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

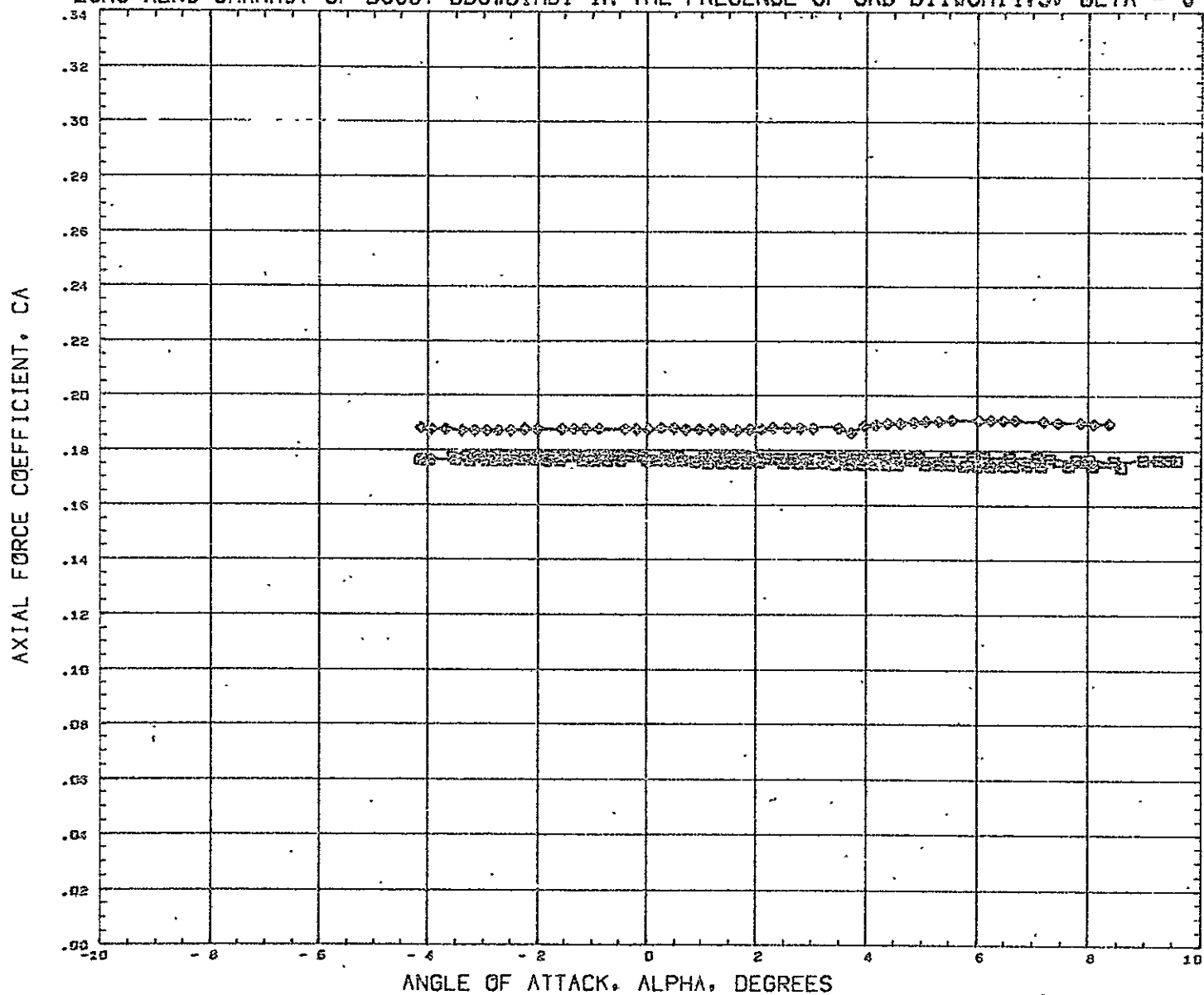


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	ALPB	5.000
□	5.000	BETB	0.000	HACH	2.990
◇	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	Sq IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8990	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

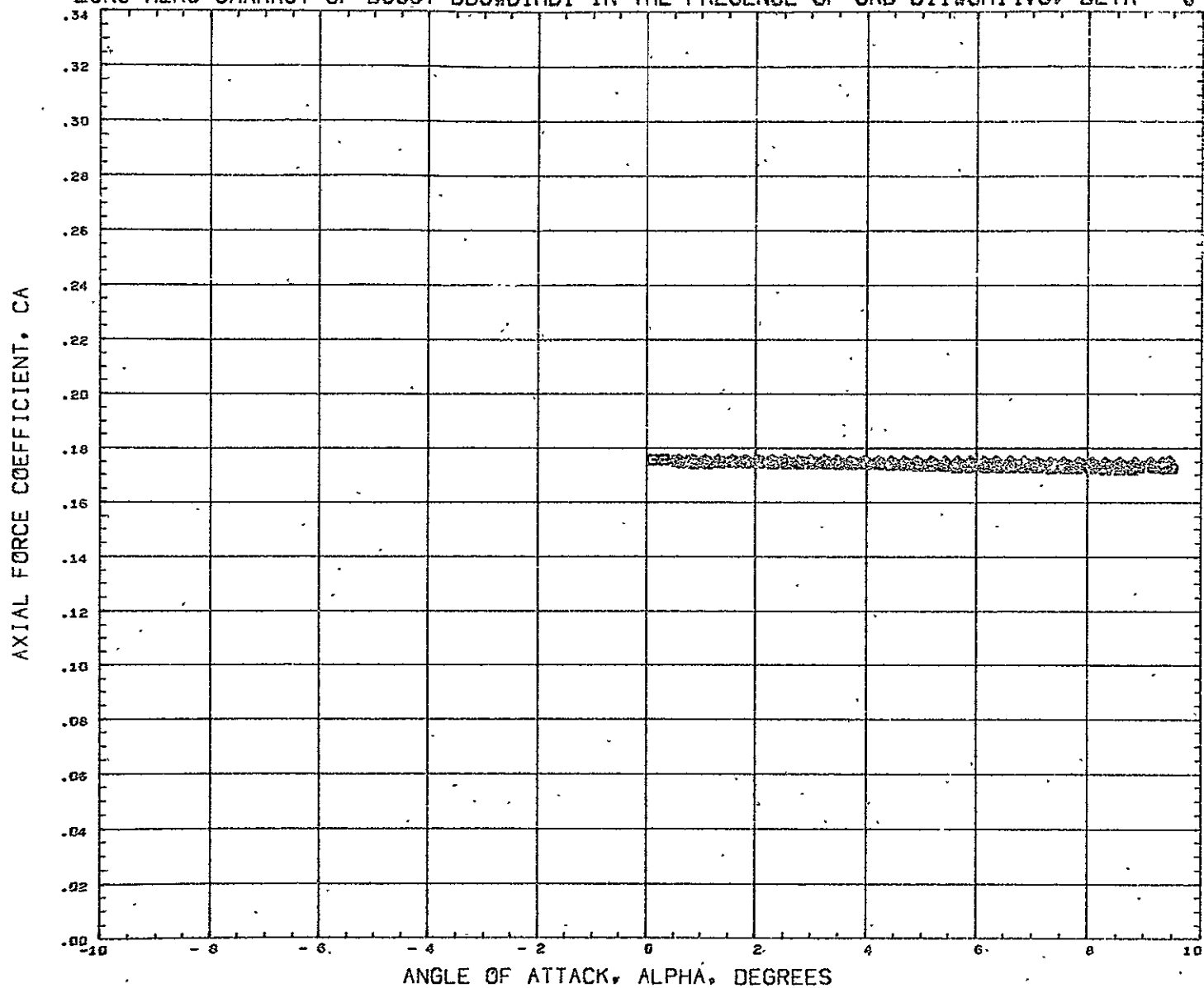


SYMBOL	SEFFOS	PARAMETRIC VALUES			
◇	7.000	BETA	0.000	ALFB	5.000
□	8.000	BETB	0.000	NACH	2.990
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0



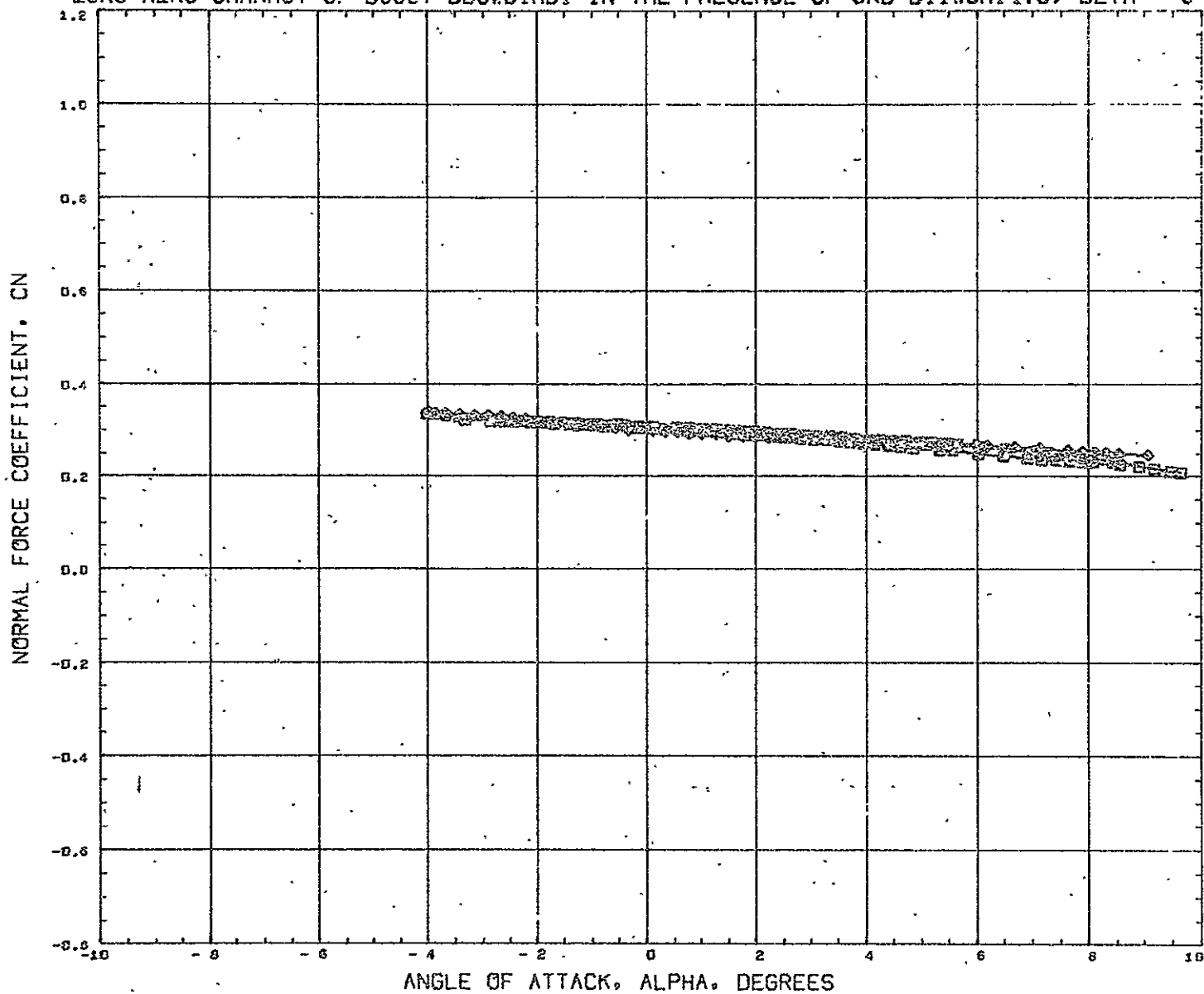
SYMBOL SEFFOS
 ○ 10.000
 □ 11.000
 ◇ 12.000

PARAMETRIC VALUES
 BETA 0.000 ALFB 5.000
 BETB 0.000 MACH 2.990

REFERENCE FILE .0000

REFERENCE INFORMATION
 REFS 54.6580 SQ IN
 REFL 2.9920 IN
 REFB 19.7000 IN
 XMRP 15.8990 IN
 YMRP 0.0000 IN
 ZMRP 2.0000 IN
 SCALE 0.0088

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

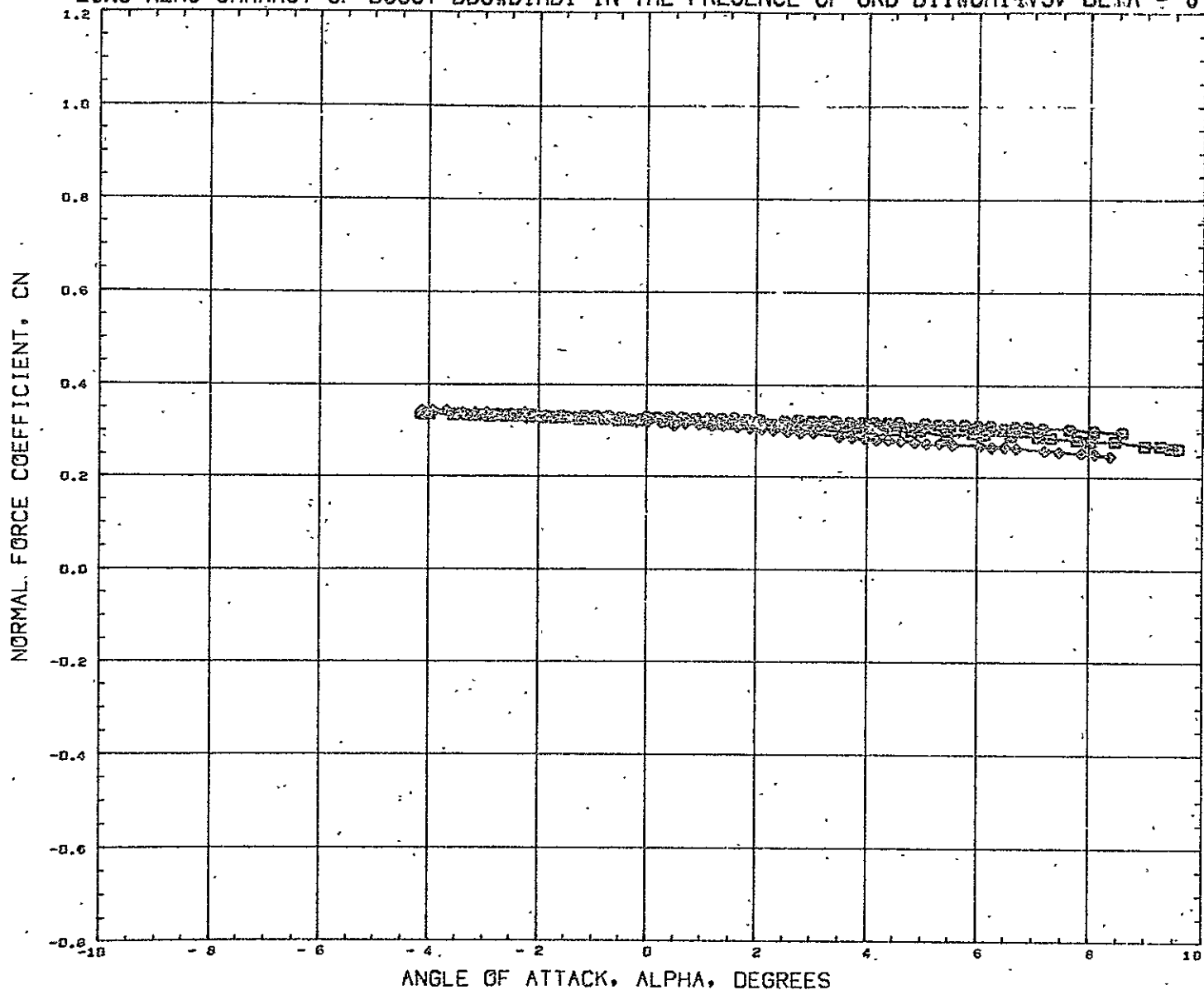


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	ALPB	5.000
□	5.000	BETB	0.000	NACH	2.990
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



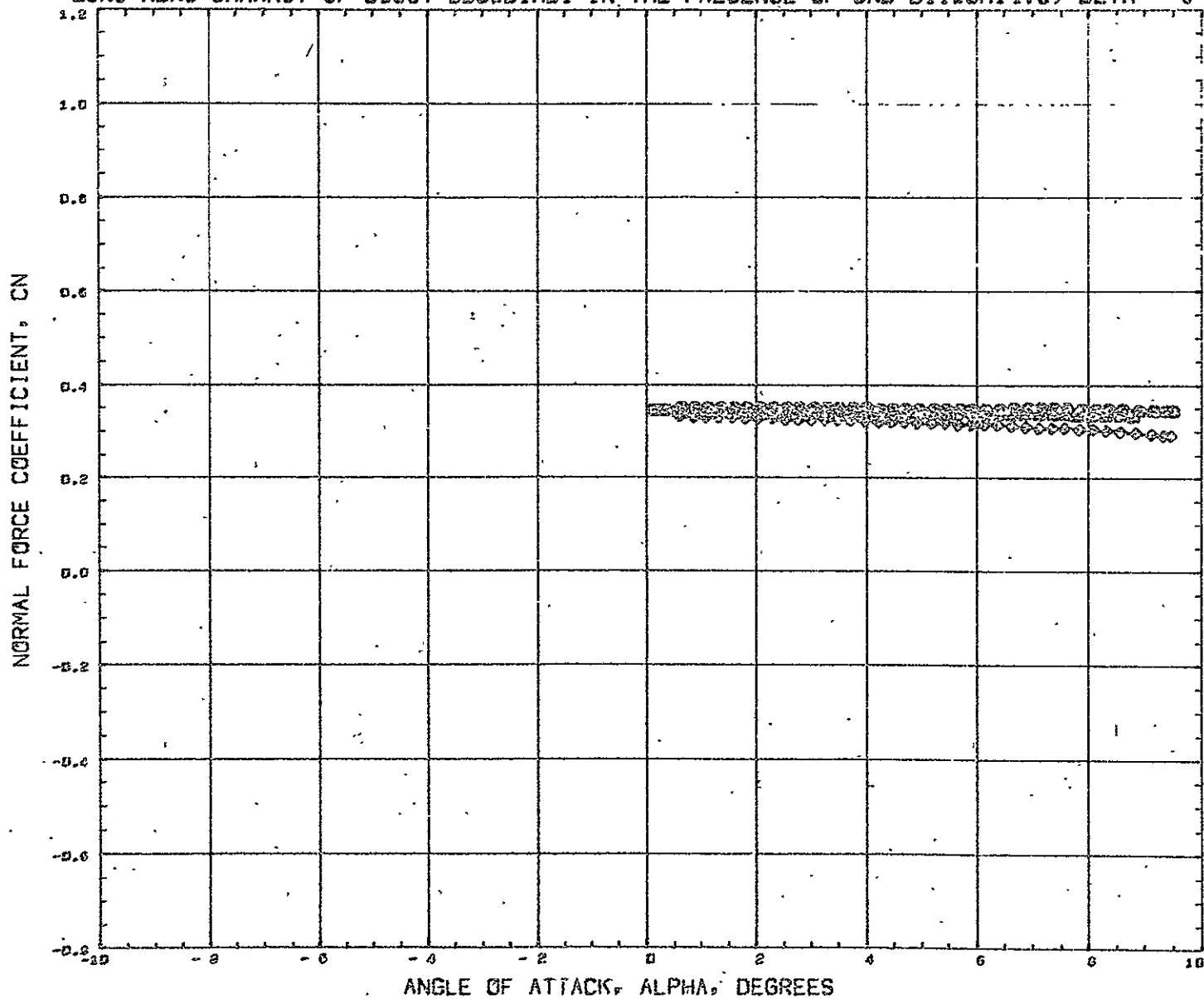
SYMBOL SEFFOS
 ○ 7.000
 □ 8.000
 ◇ 9.000

PARAMETRIC VALUES
 BETA 0.000 ALPB 5.000
 BETB 0.000 MACH 2.990

REFERENCE INFORMATION
 REFS 54.6580 SQ IN
 REFL 2.9920 IN
 REFB 19.7000 IN
 XNRP 15.8990 IN
 YNRP 0.0000 IN
 ZNRP 2.0000 IN
 SCALE 0.0088

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

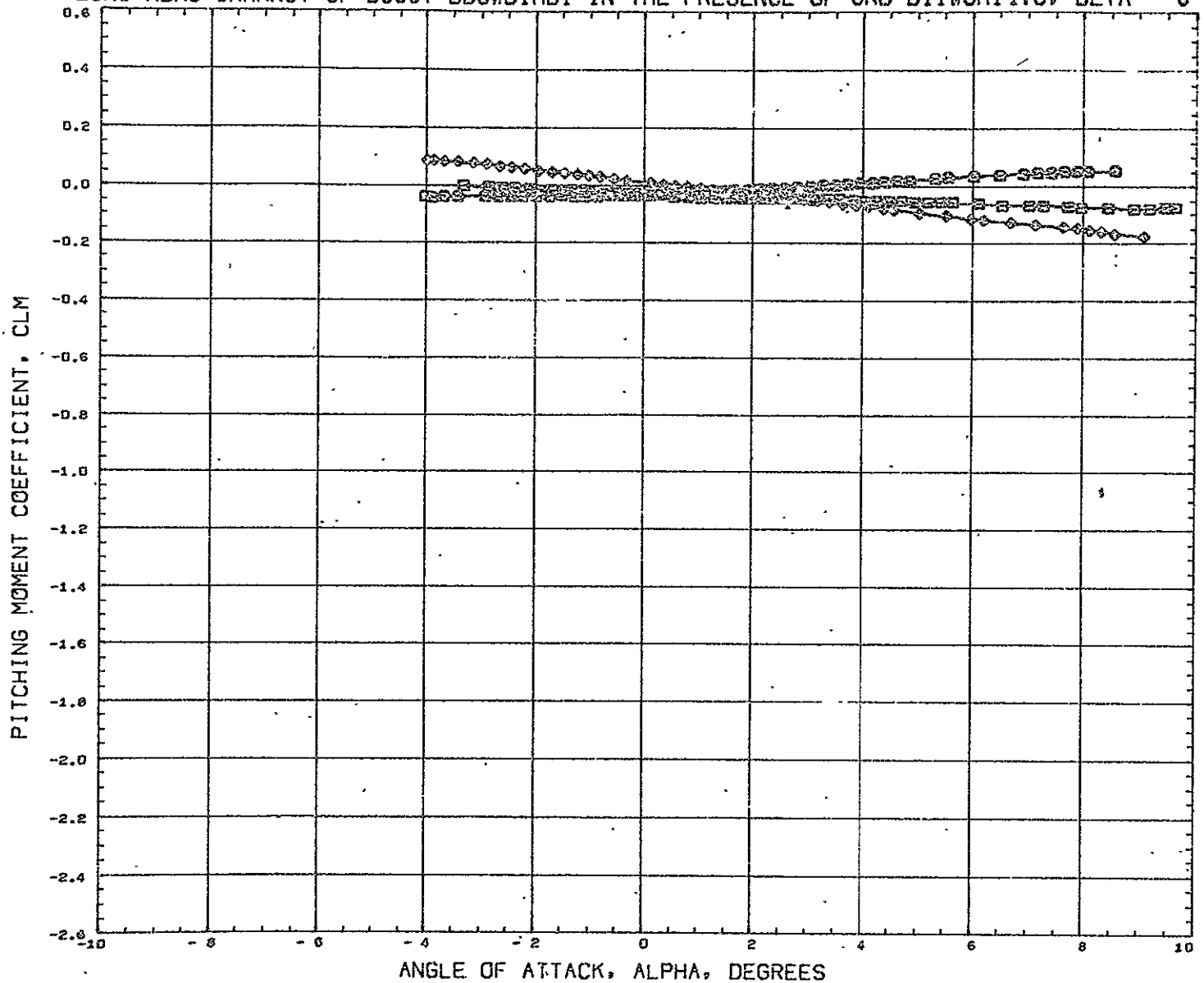


SYMBOL	SCFFOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	ALFB	5.000
□	11.000	BETB	0.000	MACH	2.990
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6500	SG IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

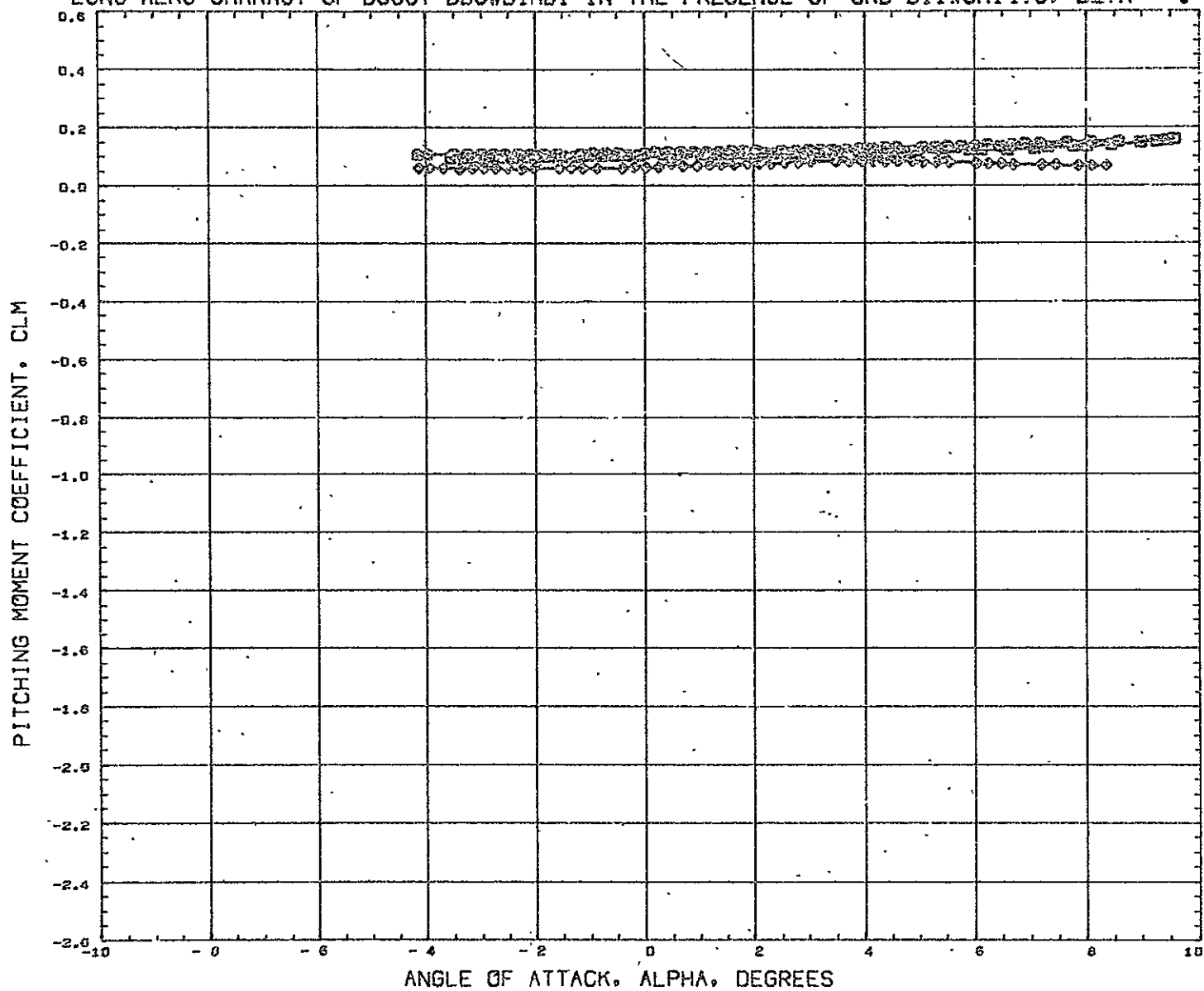


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	ALPB	5.000
◇	5.000	BETB	0.000	HACH	2.990
○	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	50 IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	HACH
□	7.000	0.000	5.000		
□	8.000	0.000	2.990		
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YNRP	0.0000	IN
ZNRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

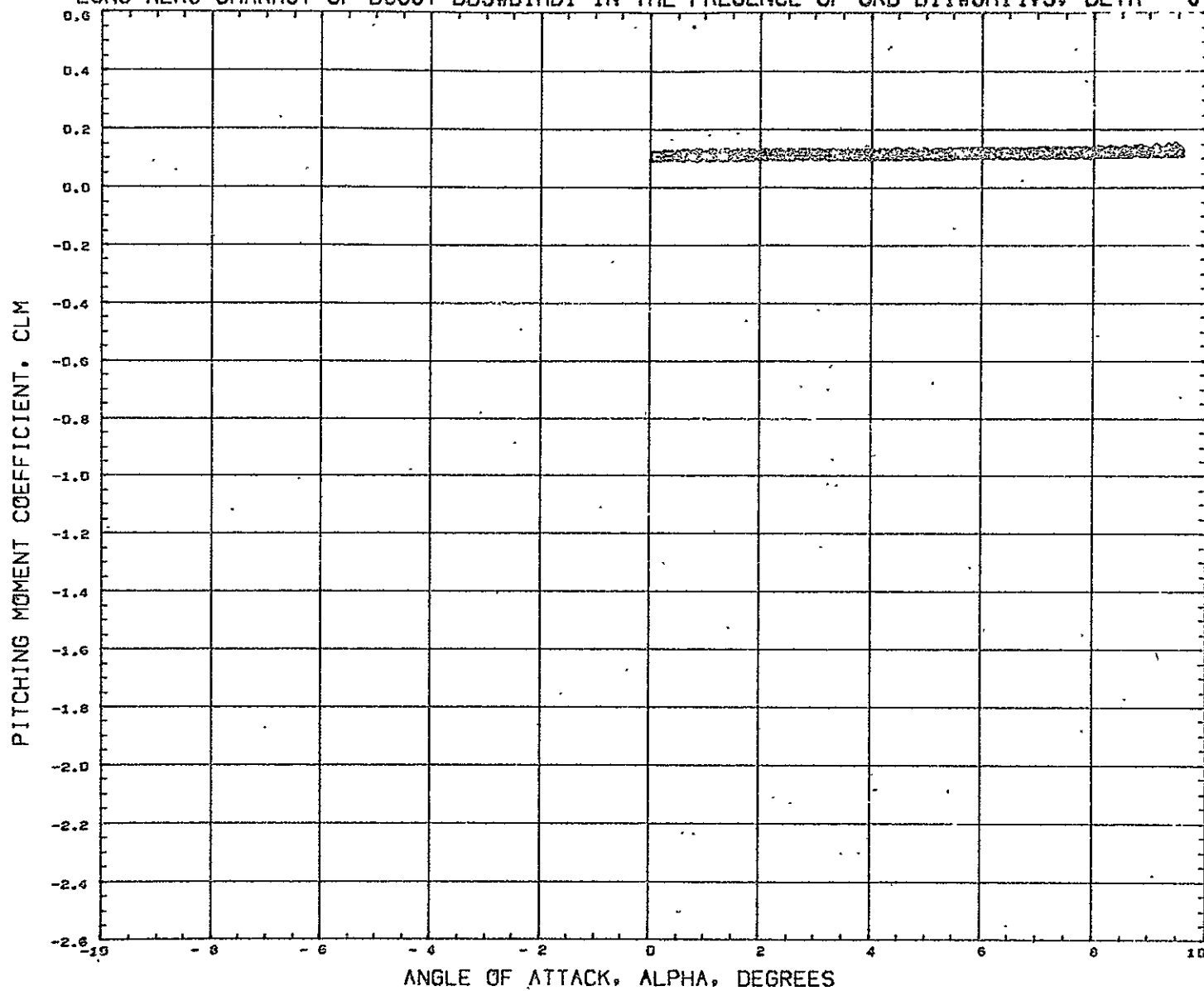
MSC S-28 BOOSTER BB3WB1HB1 NEAR B11W6H14V5

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0

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



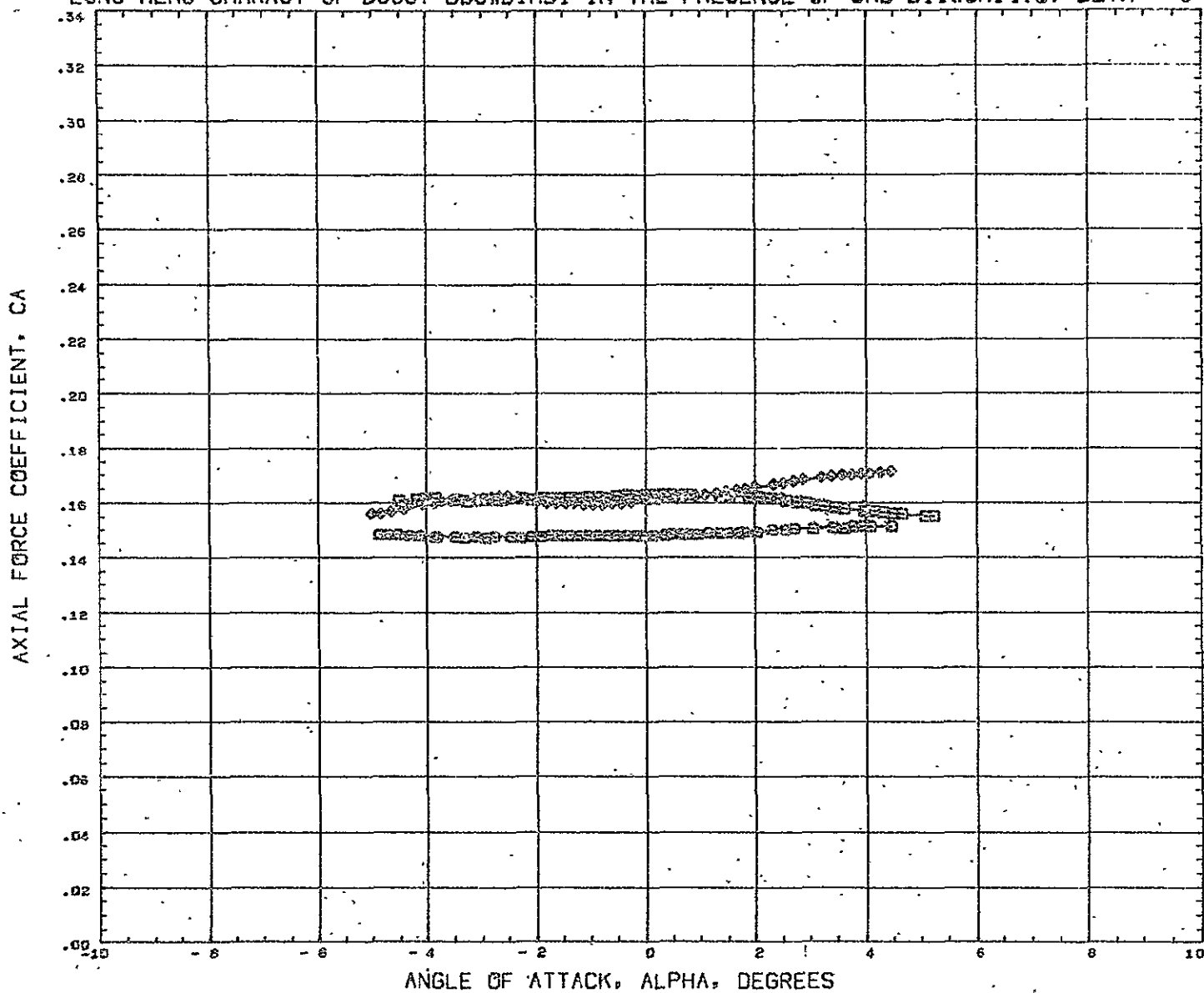
SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	ALPB	5.000
□	11.000	BETB	0.000	MACH	2.990
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

MSC S-28 BOOSTER BB3WB1HB1 NEAR B11W6H14V5 (RCH041) 22 JAN 71 PAGE 150

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

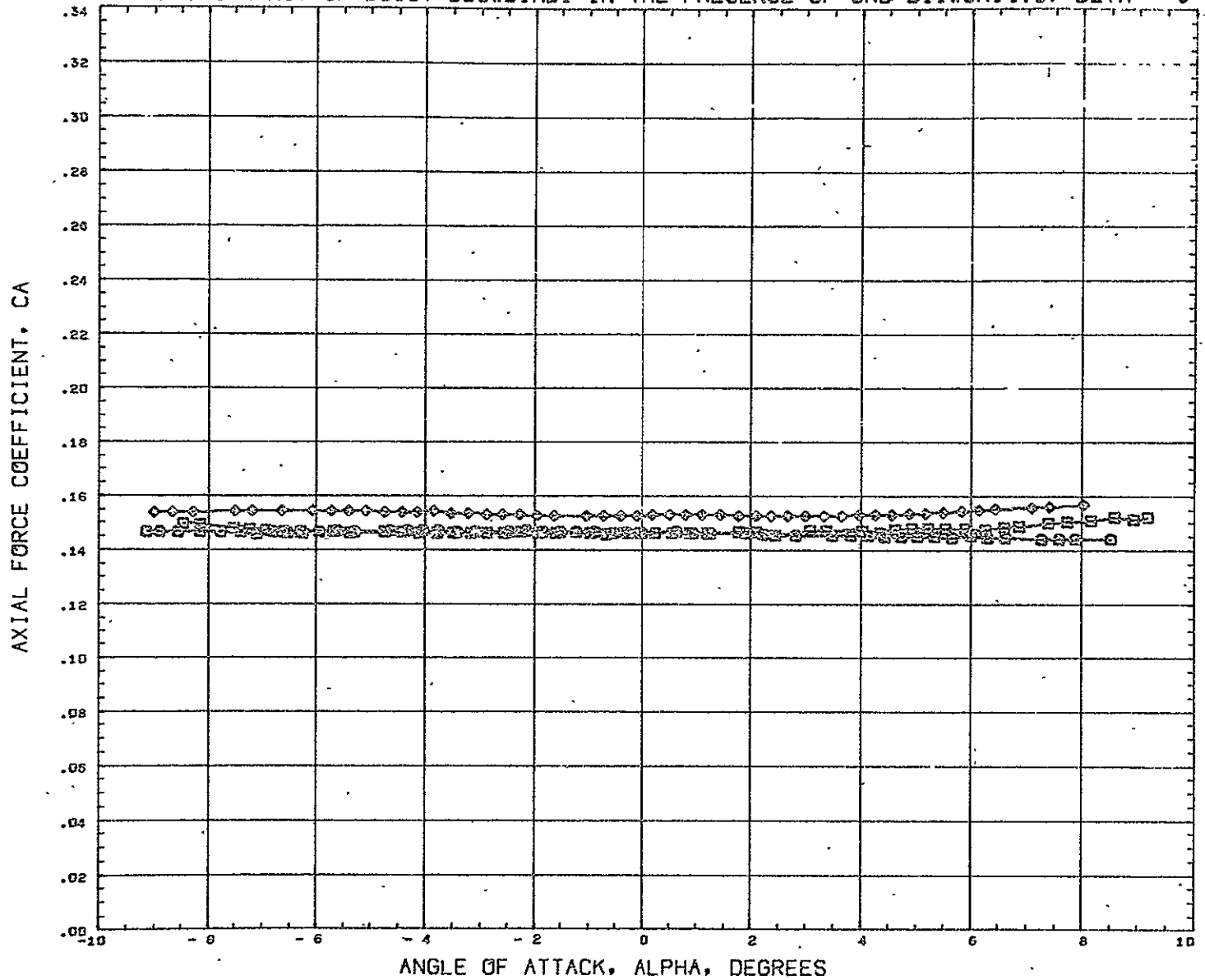


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	0.000
□	1.000	BETA	0.000	ALPB	0.000
□	2.000	DSYB	0.000	HACH	4.390
◇	3.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

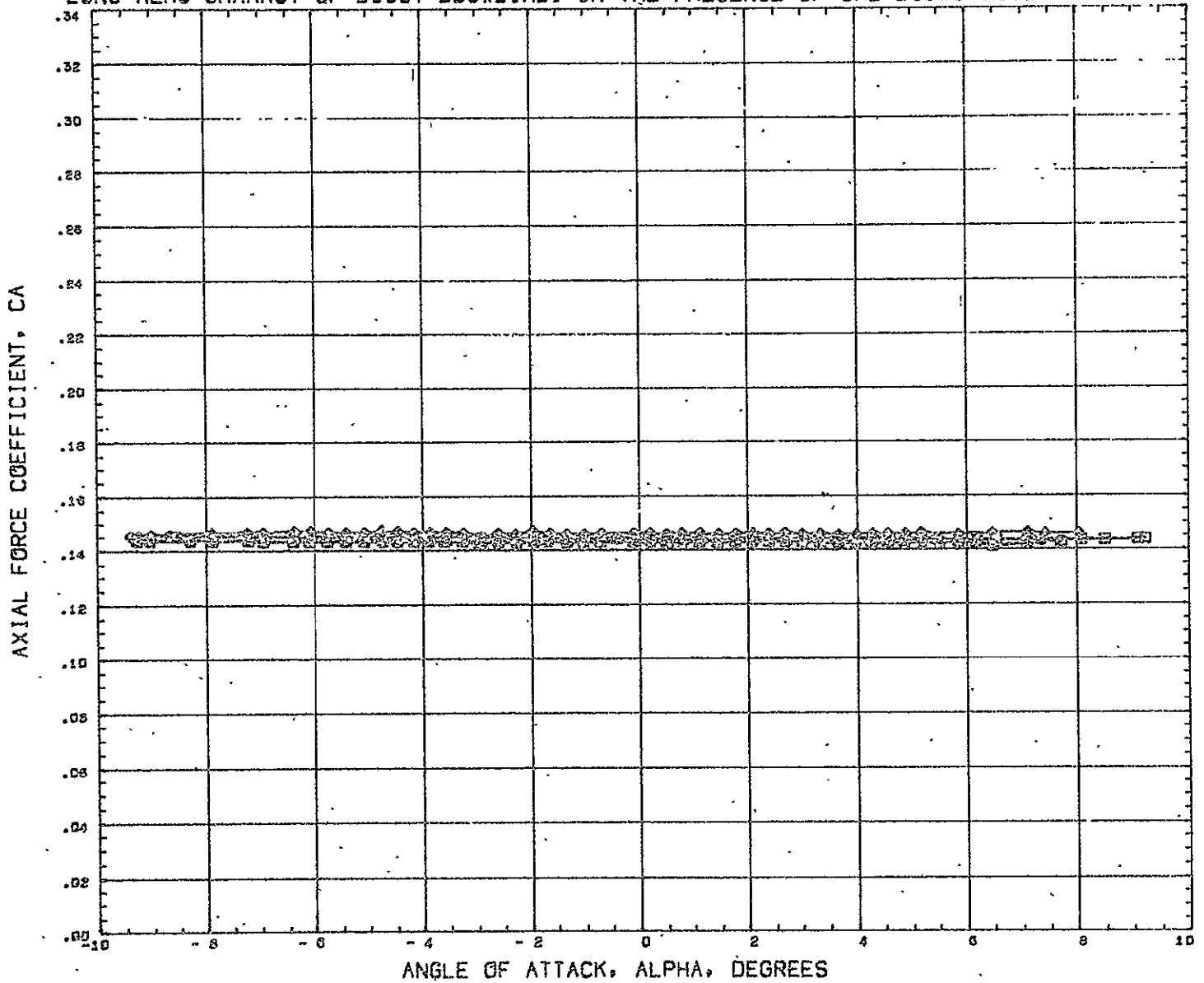


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	0.000
◻	4.000	BETA	0.000	HACH	4.390
◻	5.000	BETB	0.000		
◊	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



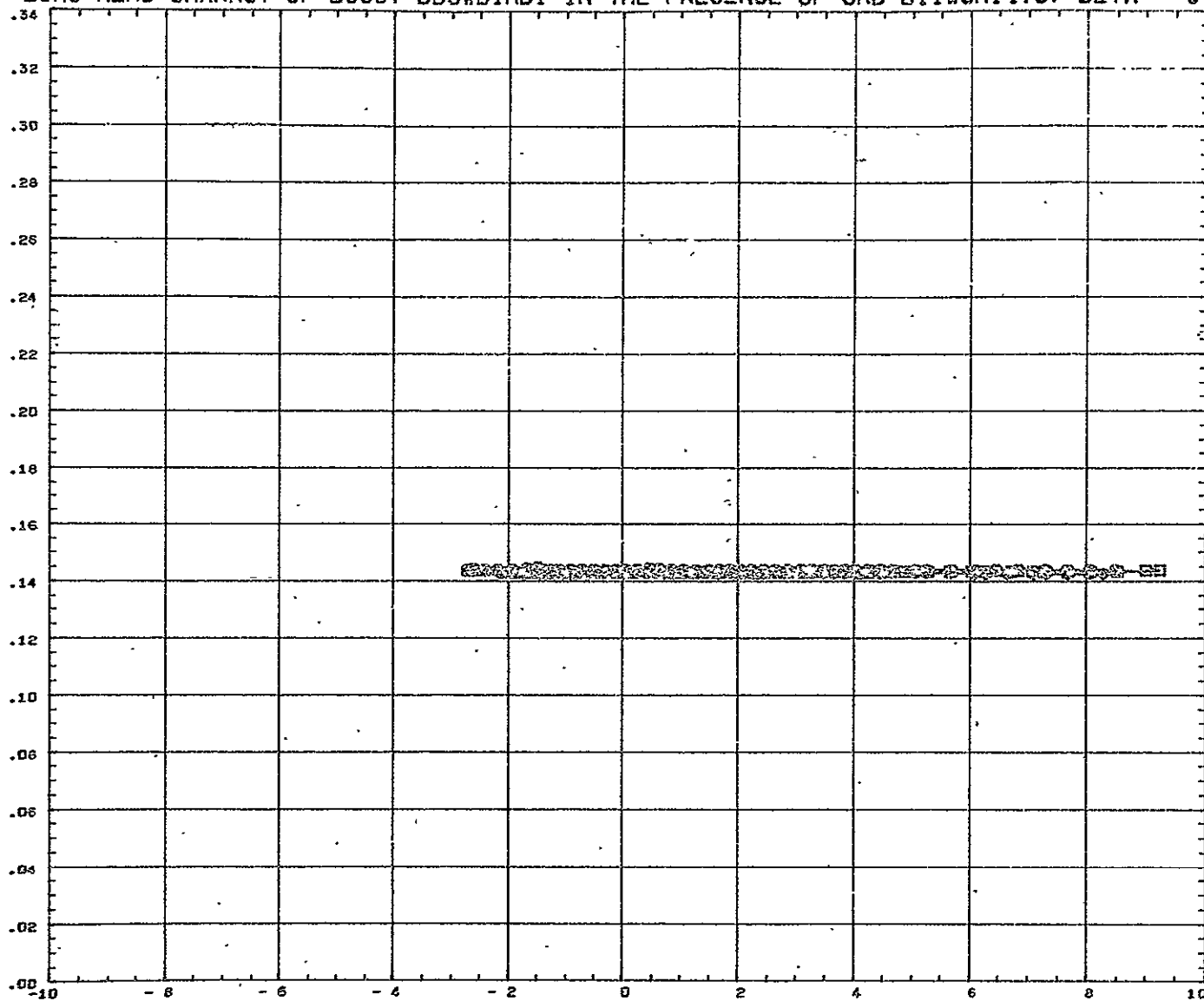
SYMBOL	SEPP03	BETA	PARAMETRIC VALUES	ALPB	0.000
□	7.000	BETA	0.000	ALPB	0.000
□	8.000	BETA	0.000	MACH	4.390
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

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ANGLE OF ATTACK, ALPHA, DEGREES

SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	0.000
□	10.000	BETA	0.000	ALPB	0.000
□	11.000	BETB	0.000	MACH	4.390
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YNRP	0.0000	IN
ZNRP	2.0000	IN
SCALE	0.0088	

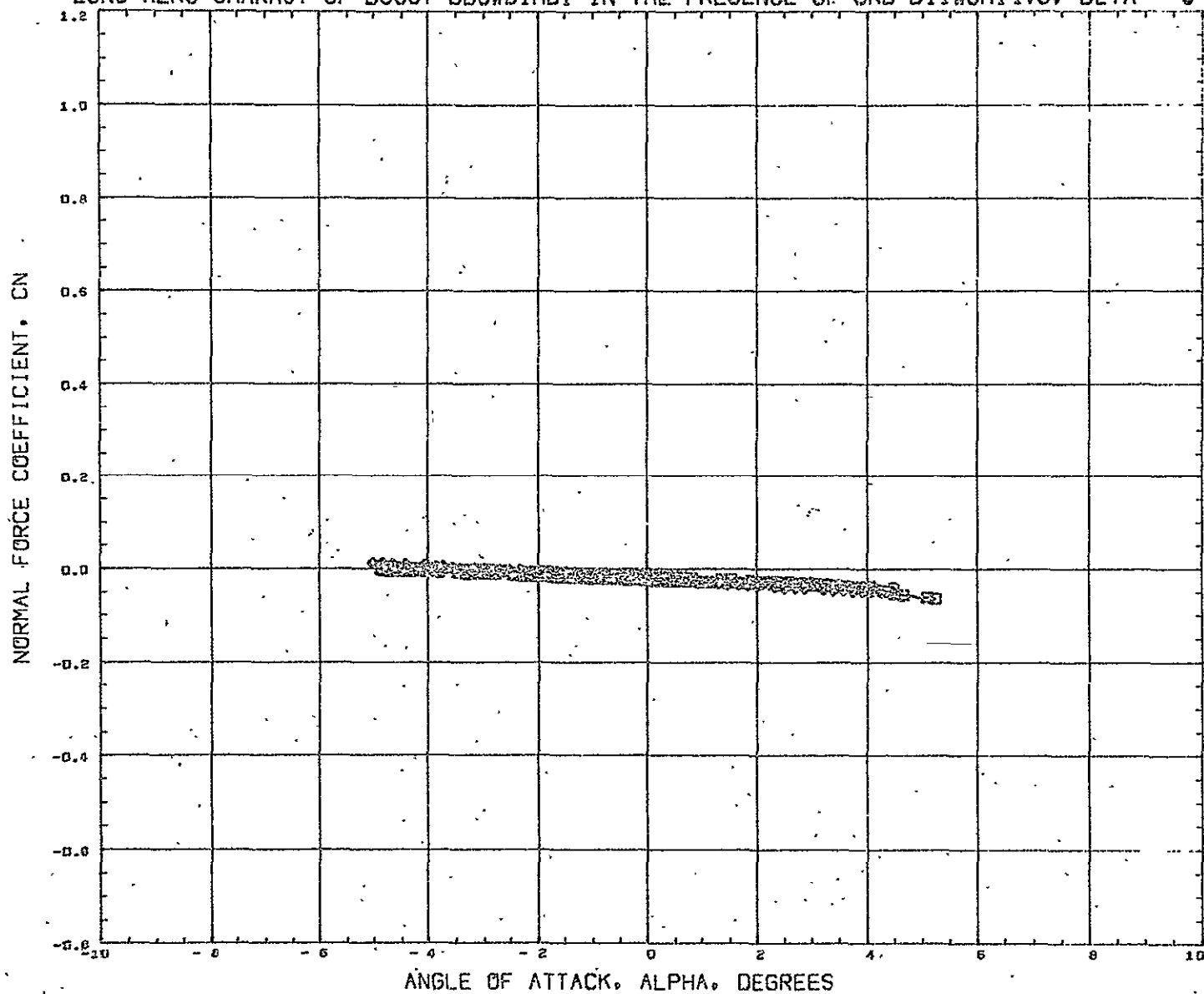
REFERENCE FILE .0000

MSC S-28 BOOSTER BB3WB1HB1 NEAR B11W6H14V5

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LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

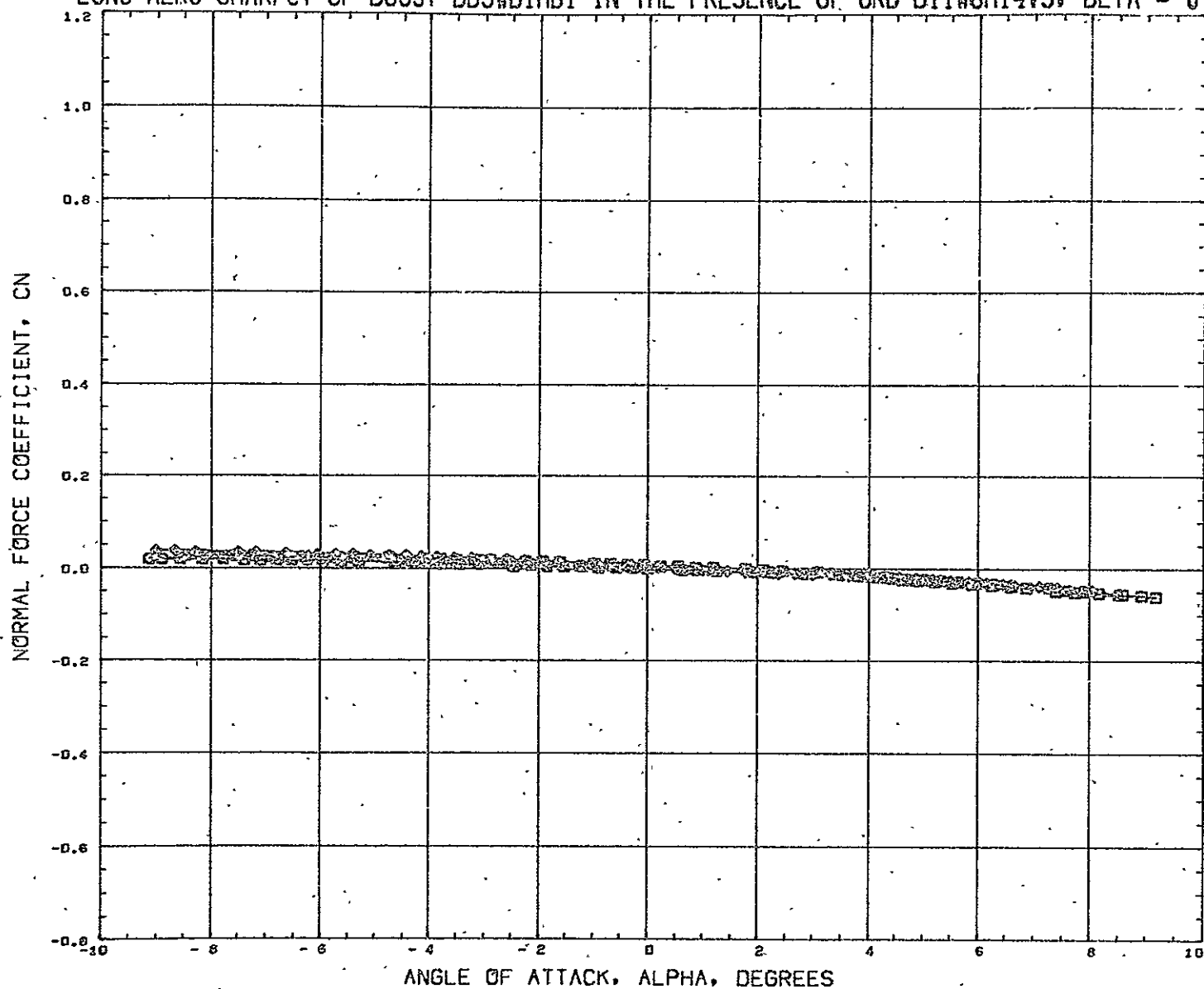


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	1.000	BETA	0.000	ALPB	0.000
□	2.000	BETB	0.000	MACH	4.390
◇	3.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

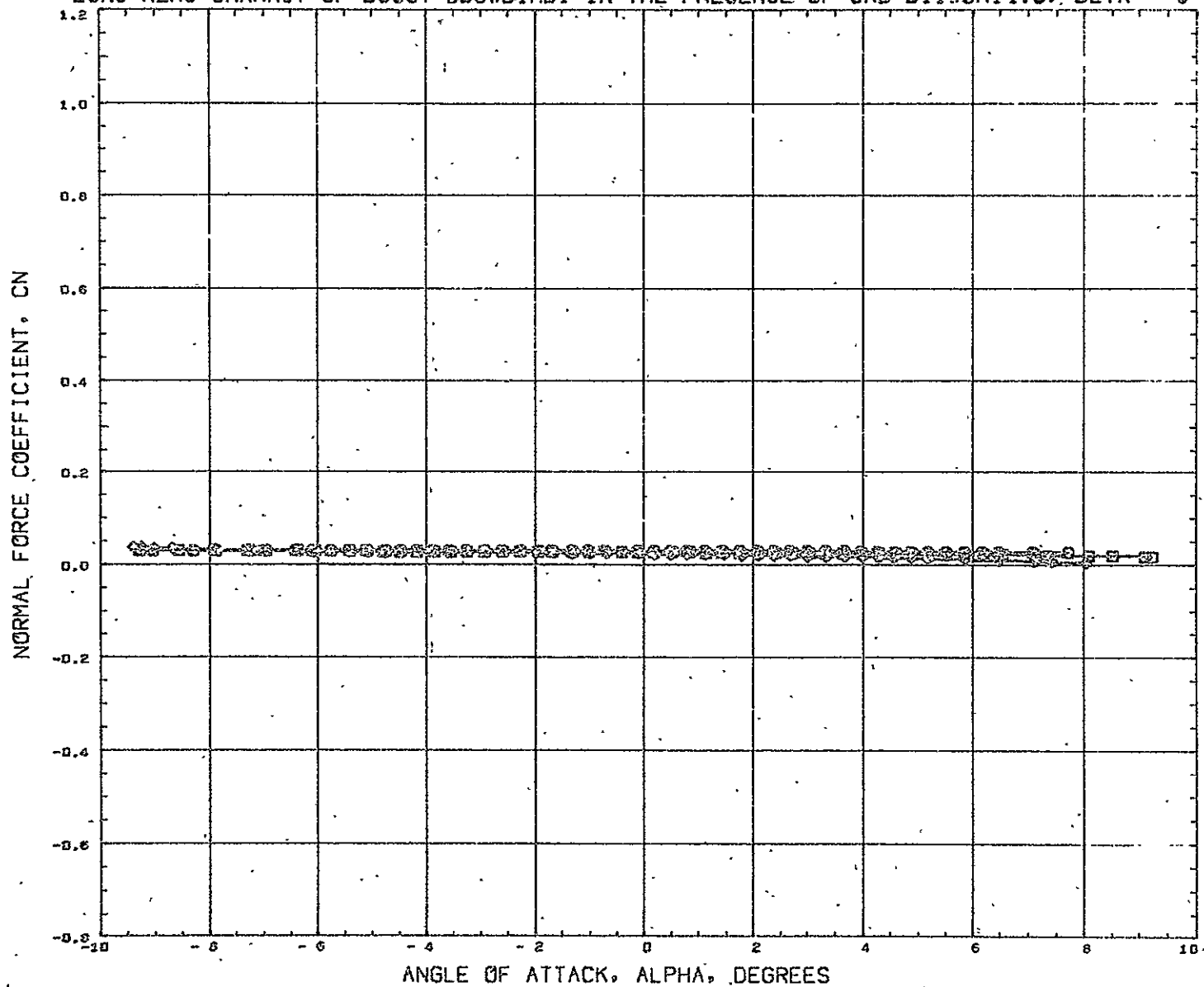


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	4.000	BETA	0.000	ALPB	0.000
□	5.000	BETB	0.000	MACH	4.390
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

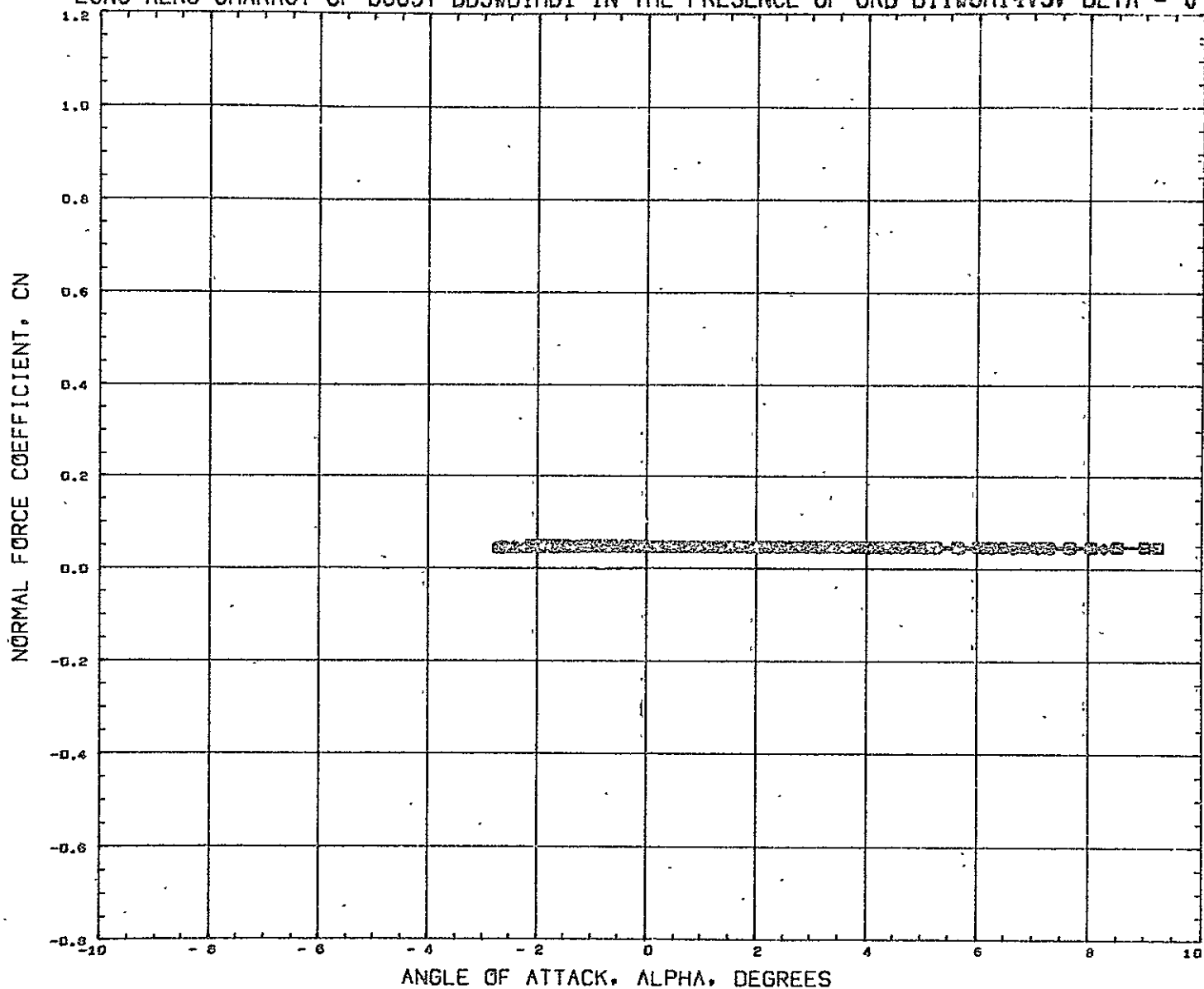


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	ALPB	0.000
□	8.000	BETB	0.000	HACH	4.390
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

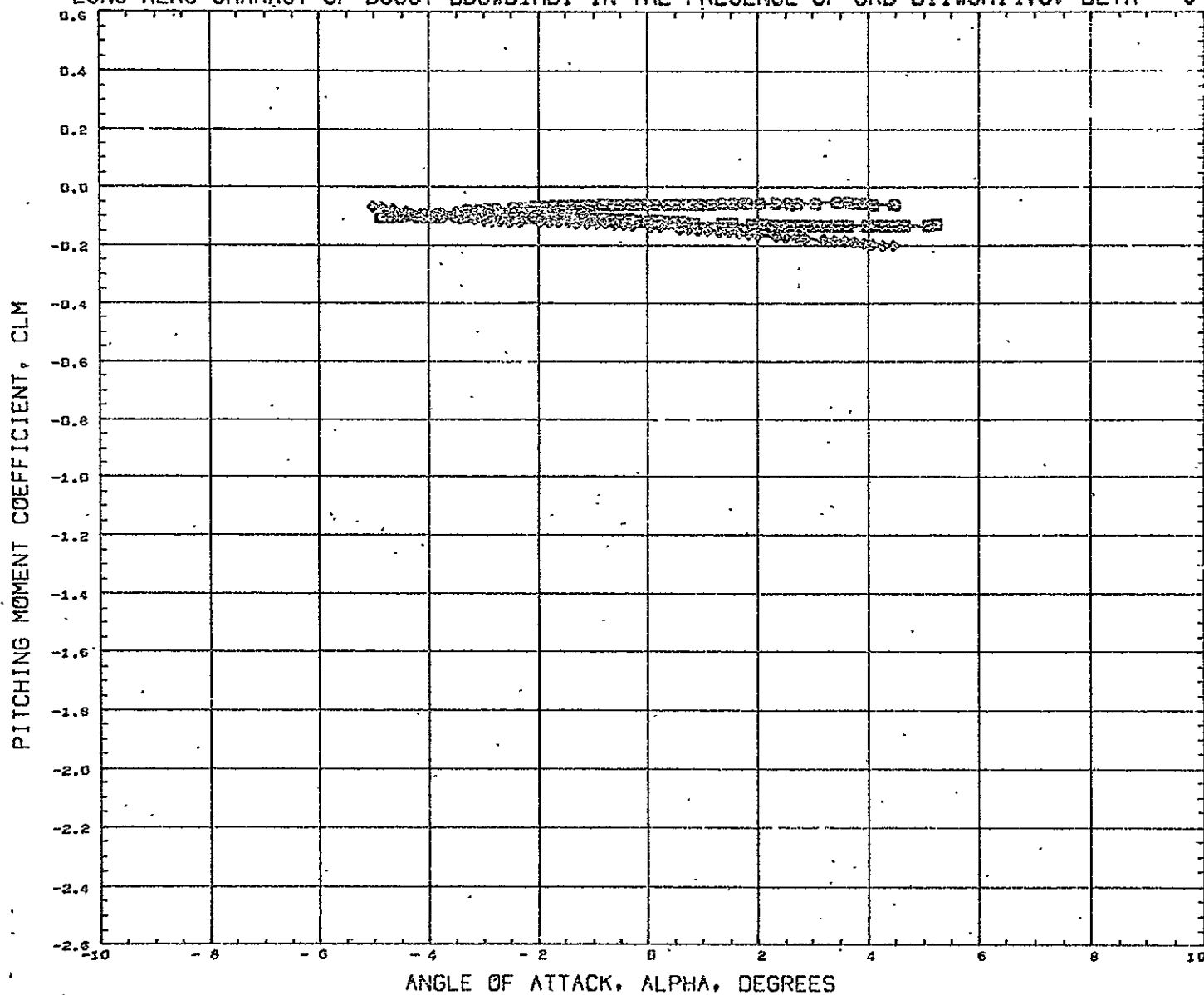


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	ALPB	0.000
□	11.000	BET8	0.000	MACH	4.390
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0086	

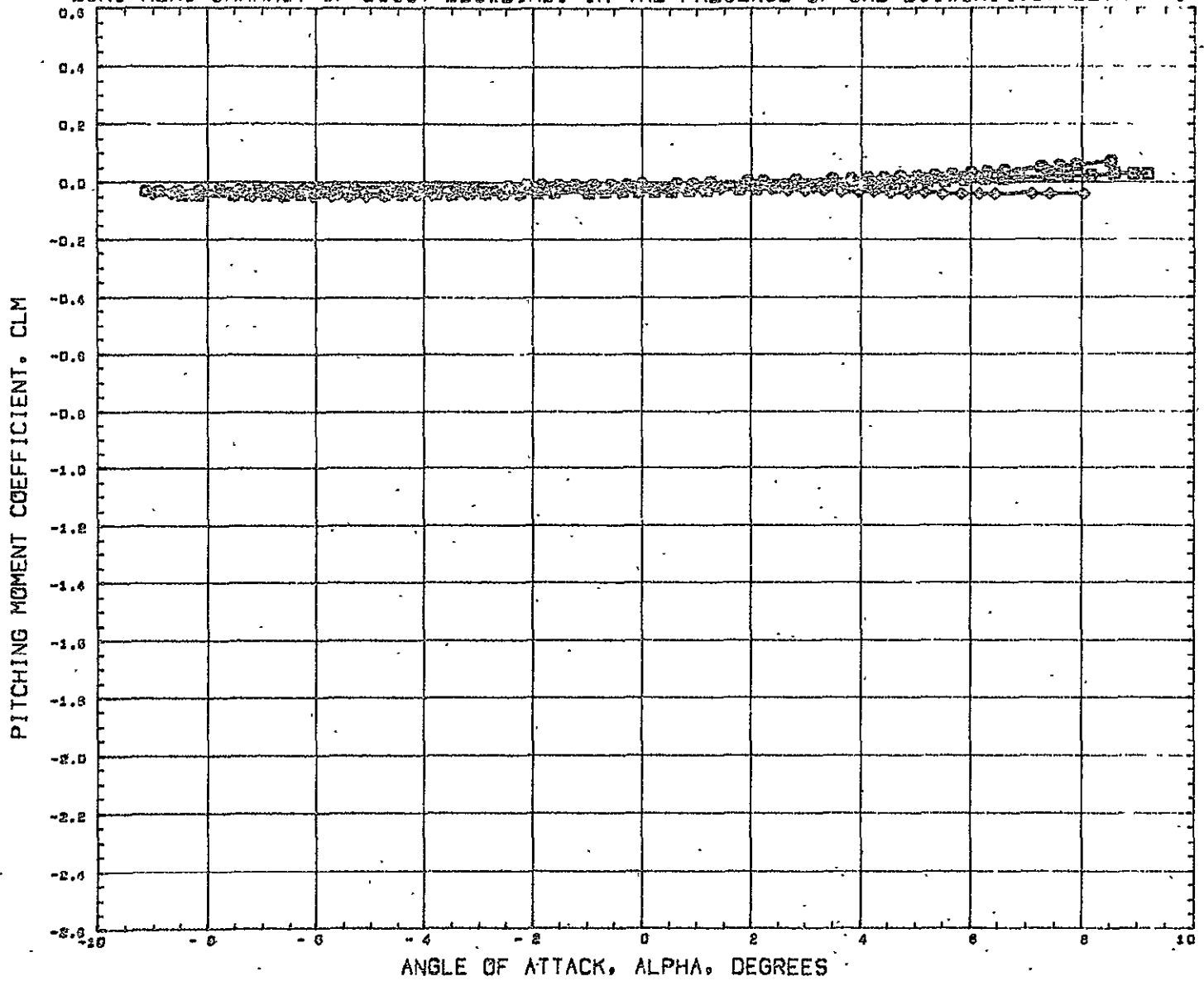
REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
□	1.000	BETA	0.000	ALPB	0.000	REFS	54.6580	SQ IN
□	2.000	BETB	0.000	MACH	4.390	REFL	2.9920	IN
◇	3.000					REFB	19.7000	IN
						XHRF	15.8990	IN
						YHRF	0.0000	IN
						ZHRF	2.0000	IN
						SCALE	0.0088	
REFERENCE FILE .0000								

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

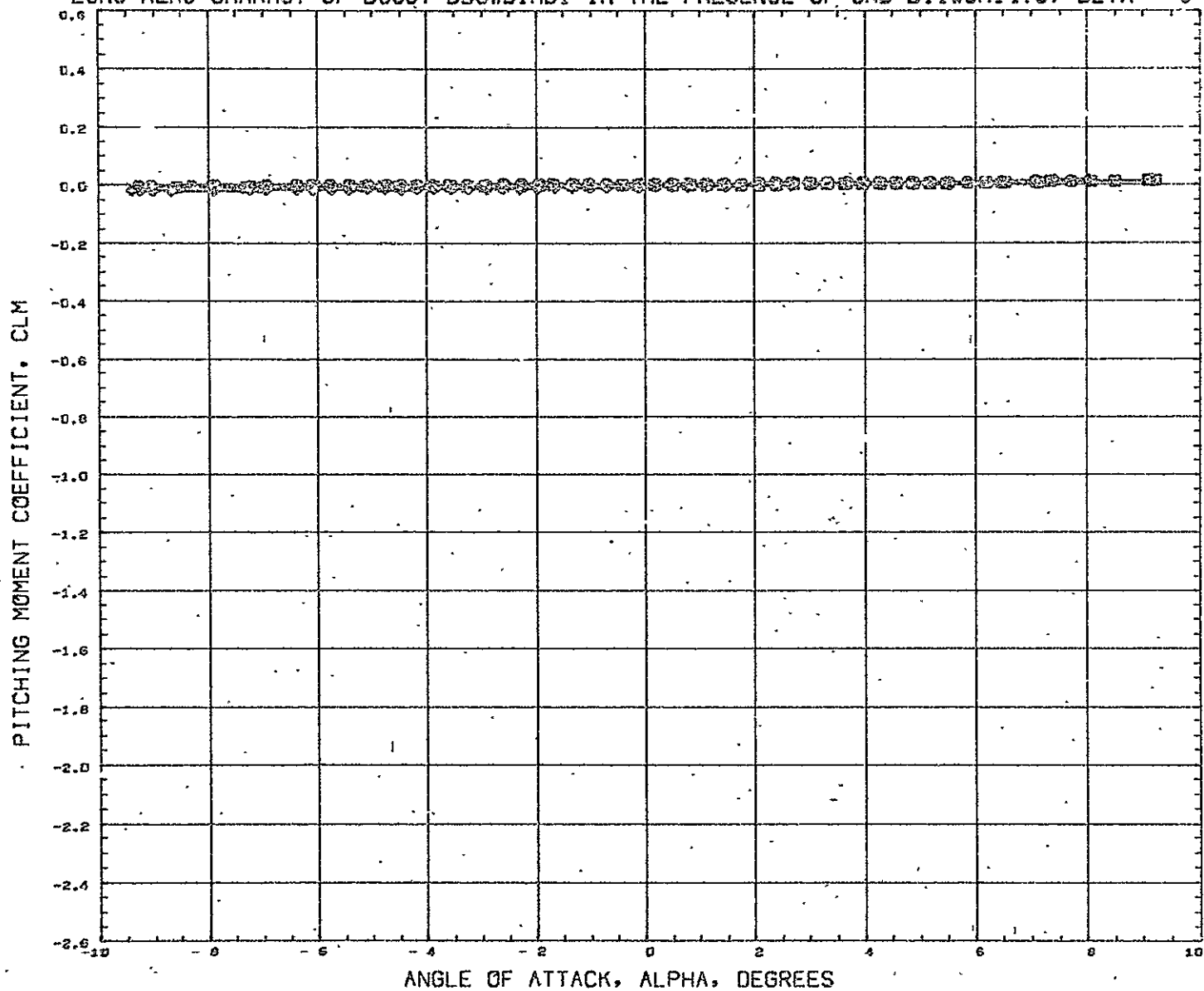


SYMBOL	SEPP08	PARAMETRIC VALUES
○	4.000	BETA 0.000 ALPB 0.000
□	5.000	BETA 0.000 MACH 4.390
◇	6.000	

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6500	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

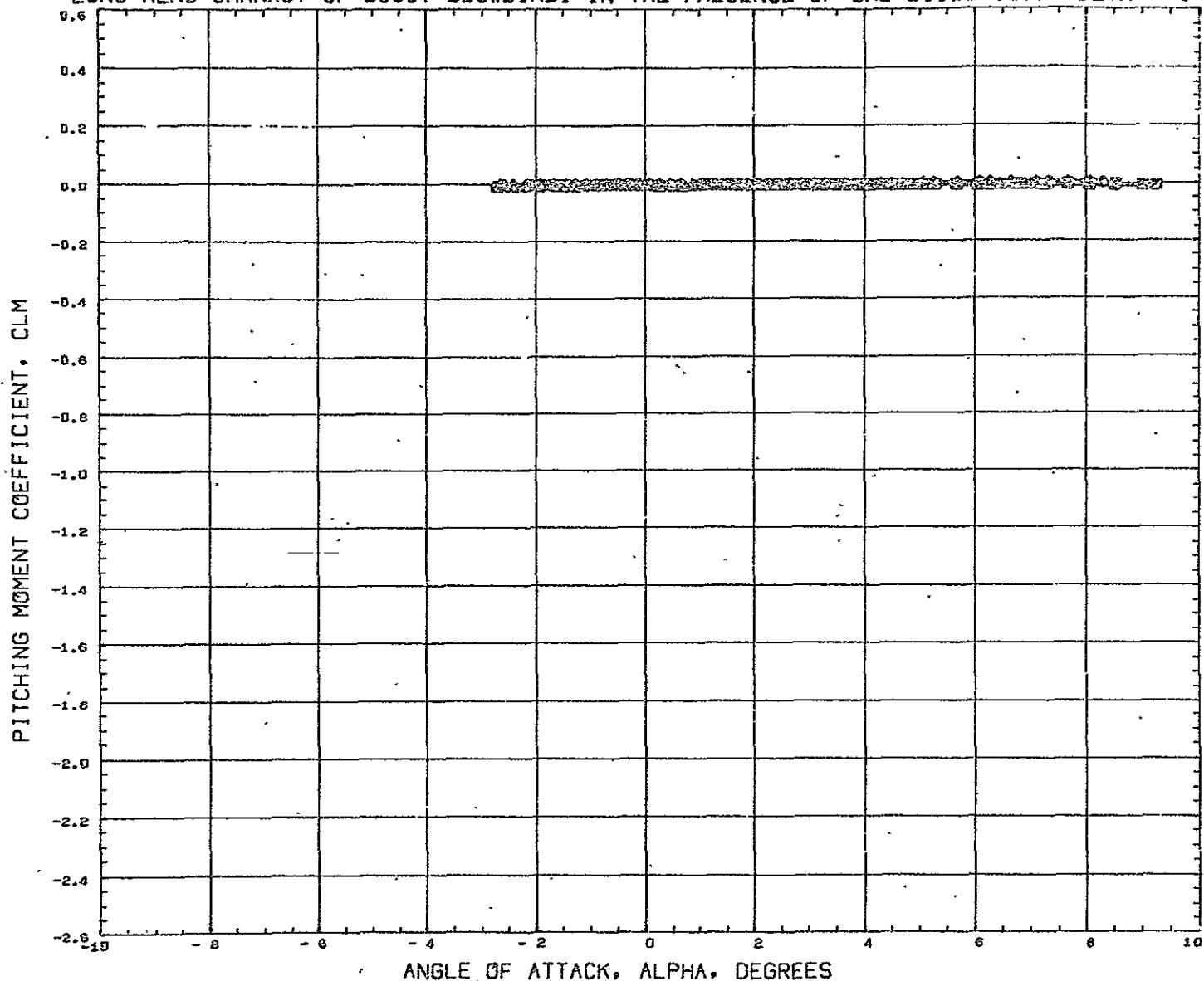
LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
□	7.000	BETA	0.000	ALPB	0.000	REFS	54.6580	SQ IN
□	8.000	BETB	0.000	HACH	4.390	REFL	2.9920	IN
◇	9.000					REFB	19.7000	IN.
						XNRF	15.8990	IN
						YNRF	0.0000	IN
						ZNRF	2.0000	IN
						SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

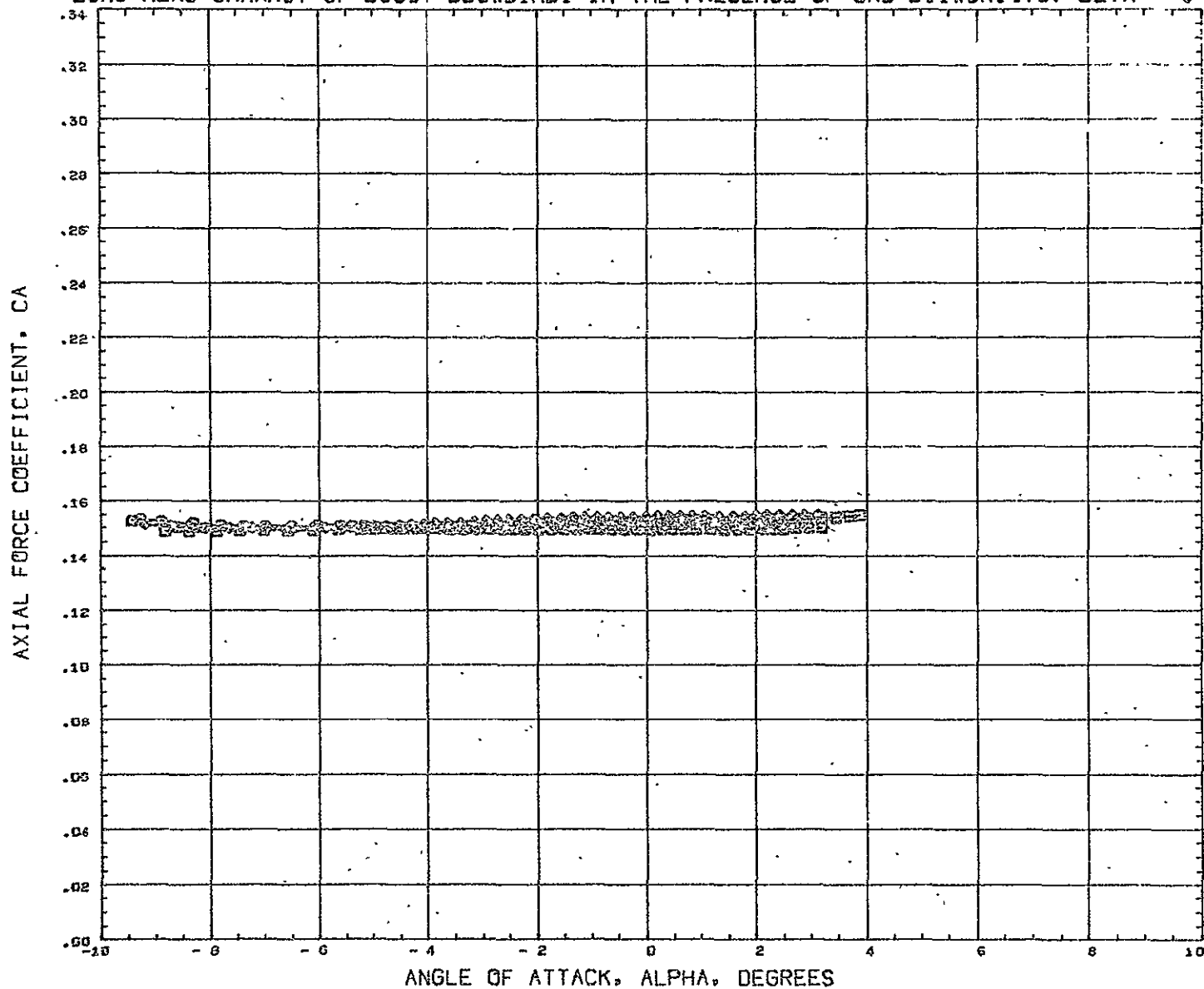


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALPB	0.000
○	10.000	BETA	0.000	ALPB	0.000
□	11.000	BETB	0.000	NACH	4.390
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

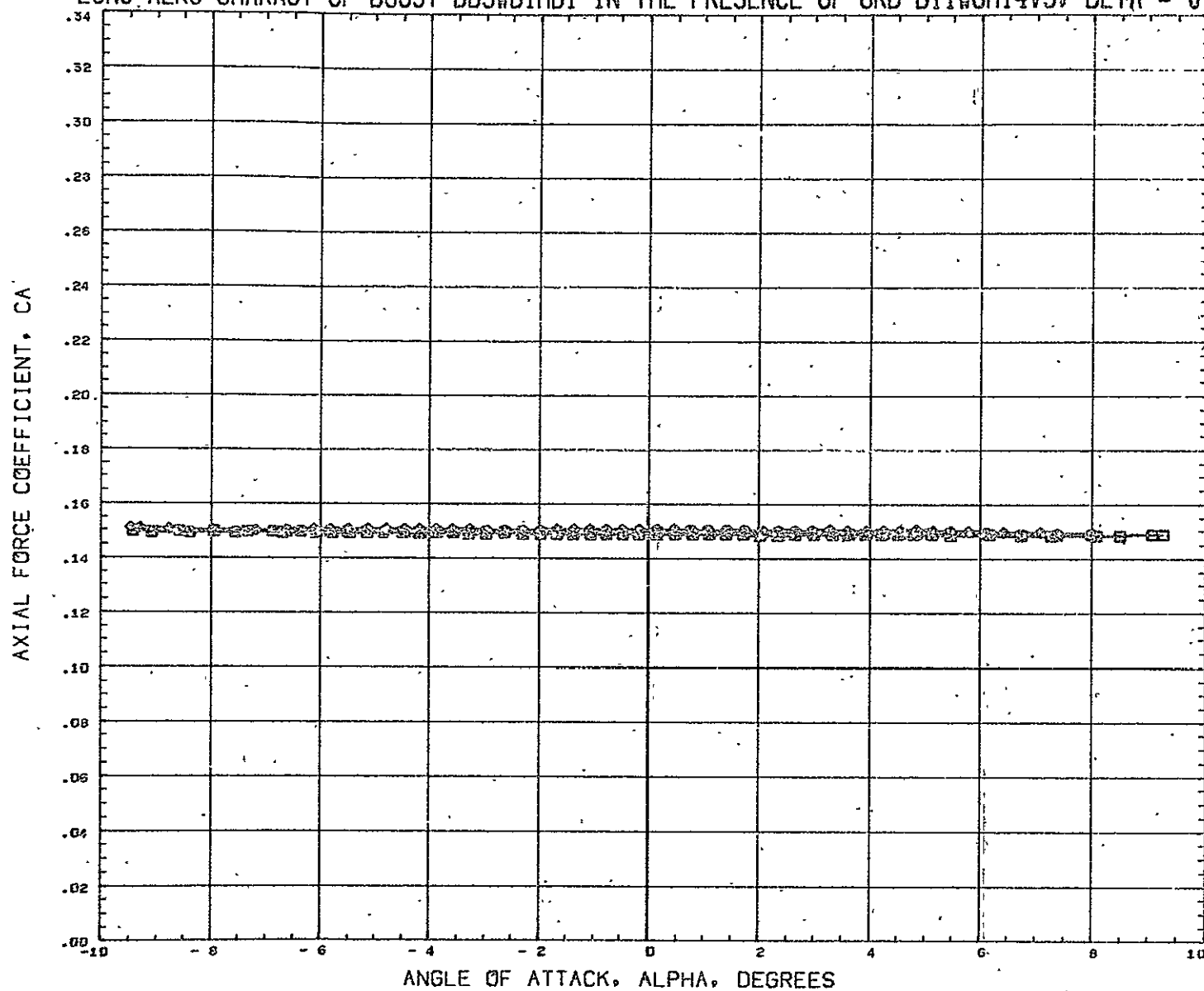


SYMBOL	SEPP05	PARAMETRIC VALUES			
□	4.000	BETA	0.000	ALPB	- 5.000
□	5.000	BETB	0.000	HACH	4.390
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEPPQS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	ALPB	- 5.000
□	8.000	BETB	0.000	MACH	4.390
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8990	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

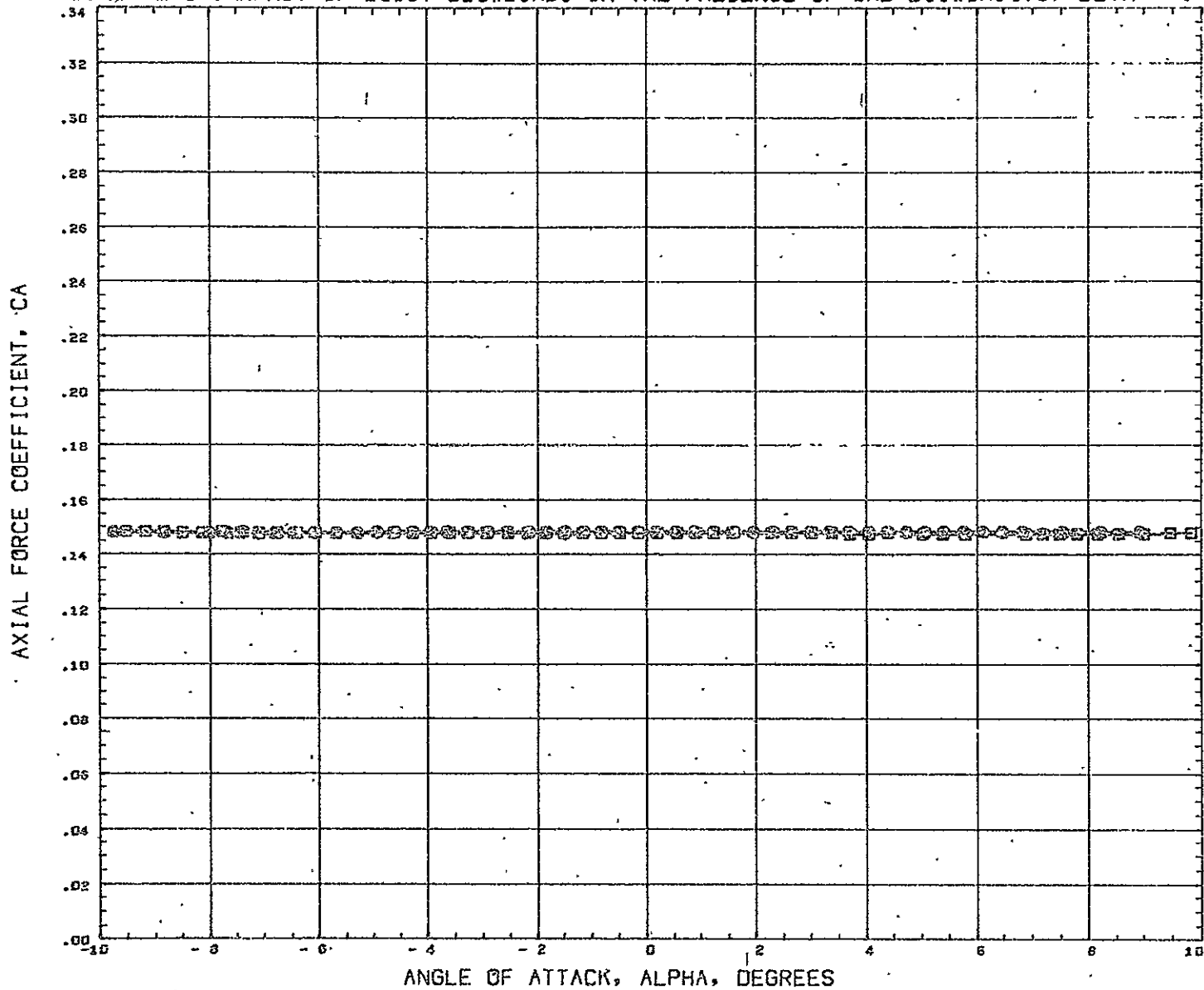
REFERENCE FILE . . .0000

MSC S-28 BOOSTER BB3WB1HB1 NEAR B11W6H14V5

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LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

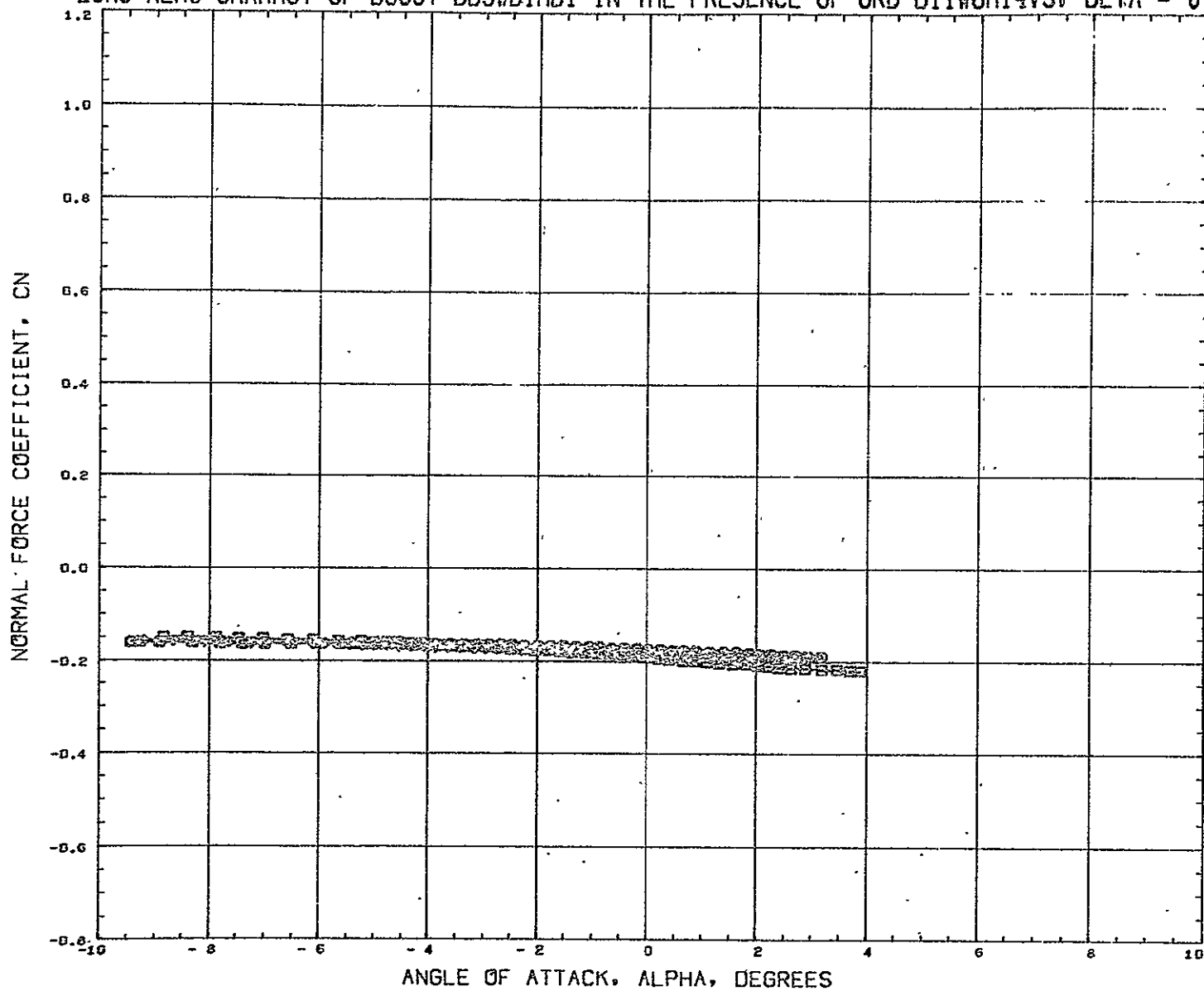


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	ALPB	- 5.000
□	11.000	BETB	0.000	HACH	4.390
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

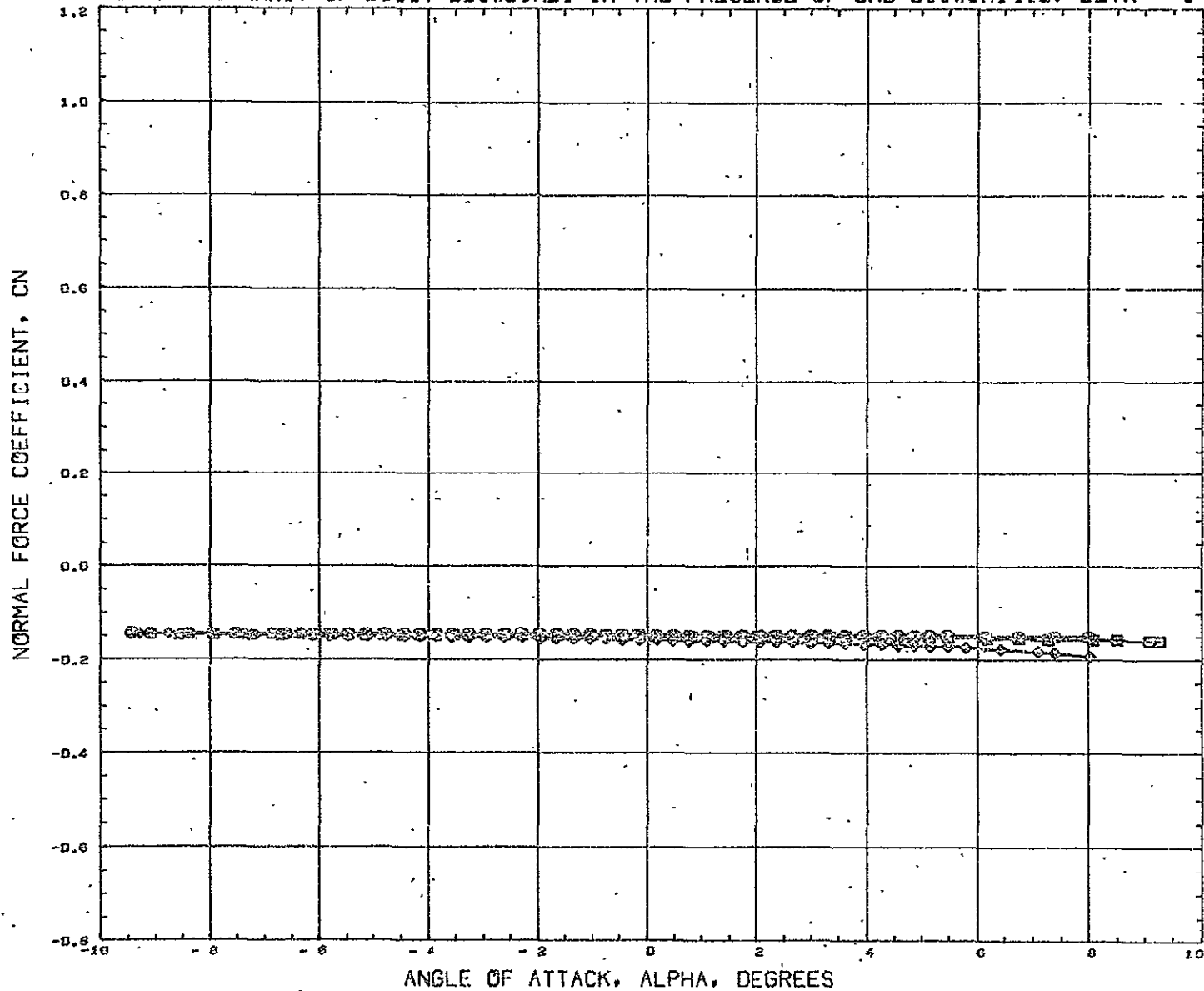


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	4.000	BETA	0.000	ALPB	- 5.000
□	5.000	BETB	0.000	MACH	4.390
◇	6.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0008	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



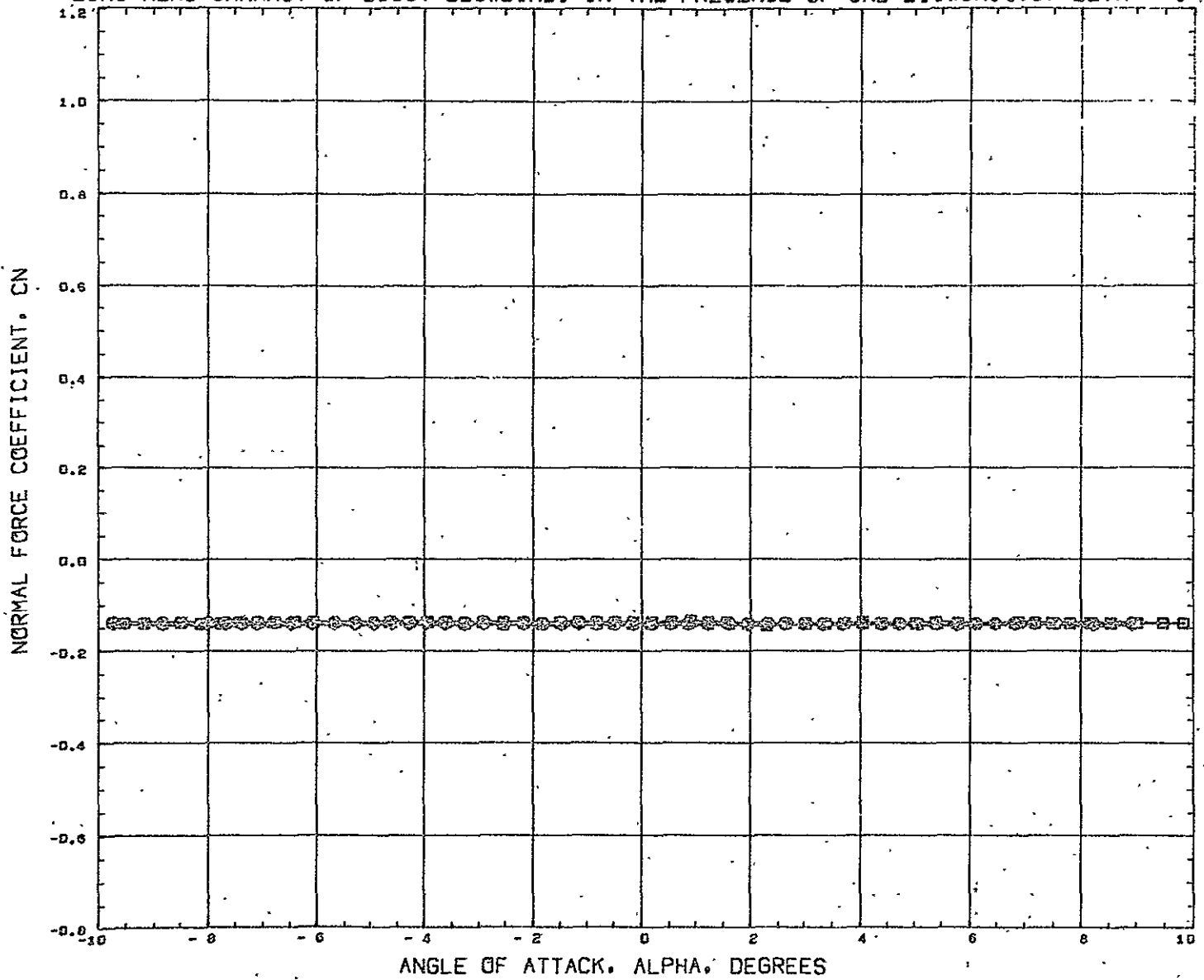
ANGLE OF ATTACK, ALPHA, DEGREES

SYMBOL	SEFPOS	BETA	PARAMETRIC VALUES	ALPB	ALPB
□	7.000	BETA	0.000	ALPB	- 5.000
□	8.000	BETA	0.000	HACH	4.390
◇	9.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

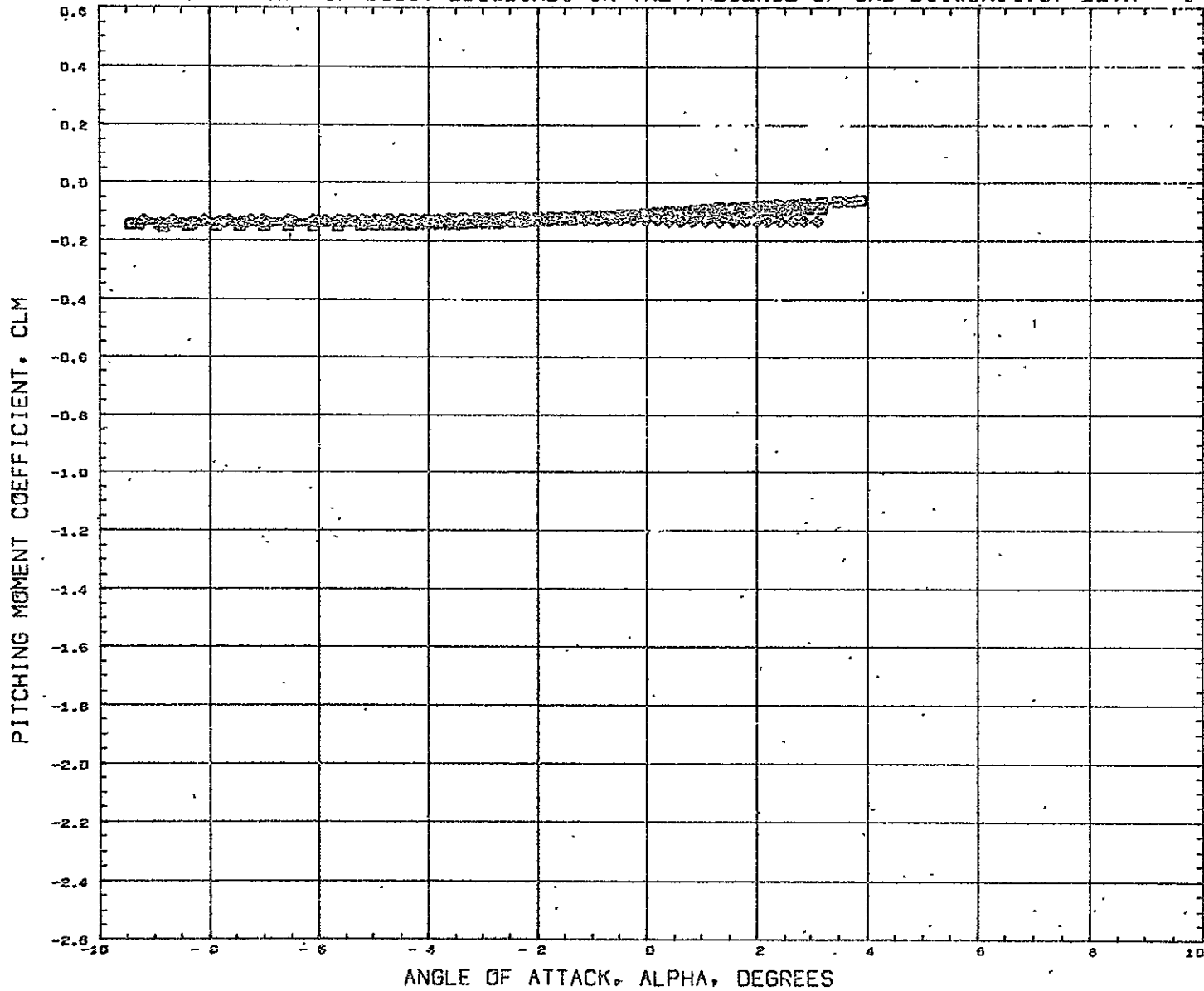


SYMBOL	SEPP05	PARAMETRIC VALUES		
□	10.000	BETA	0.000	ALPB - 5.000
□	11.000	BETB	0.000	MACH 4.390
◇	12.000			

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

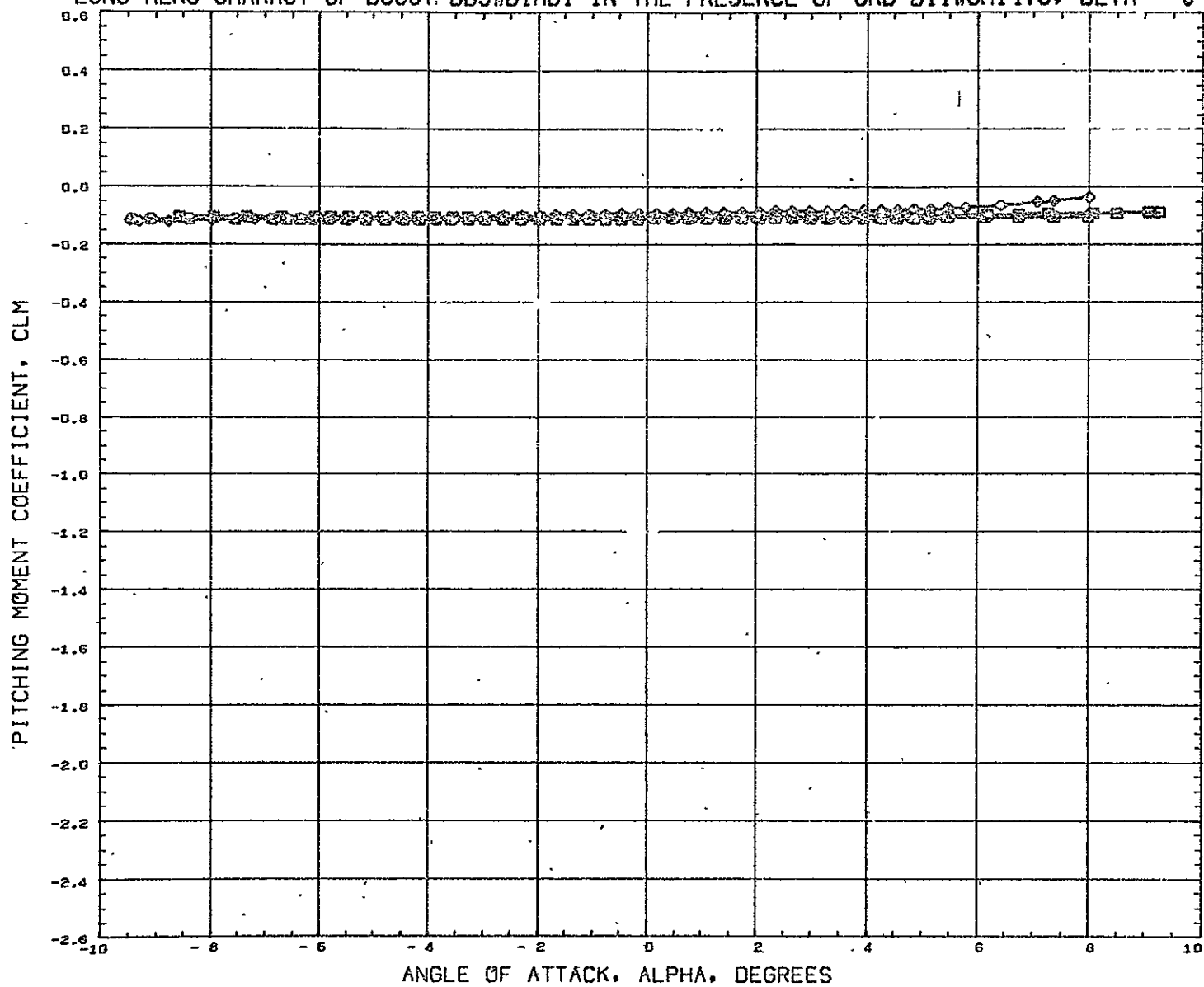


SYMBOL	SCFPOS	PARAMETRIC VALUES			
○	4.000	BETA.	0.000	ALPB	- 5.000
□	5.000	BETB	0.000	NACH	4.390
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YNRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST. BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

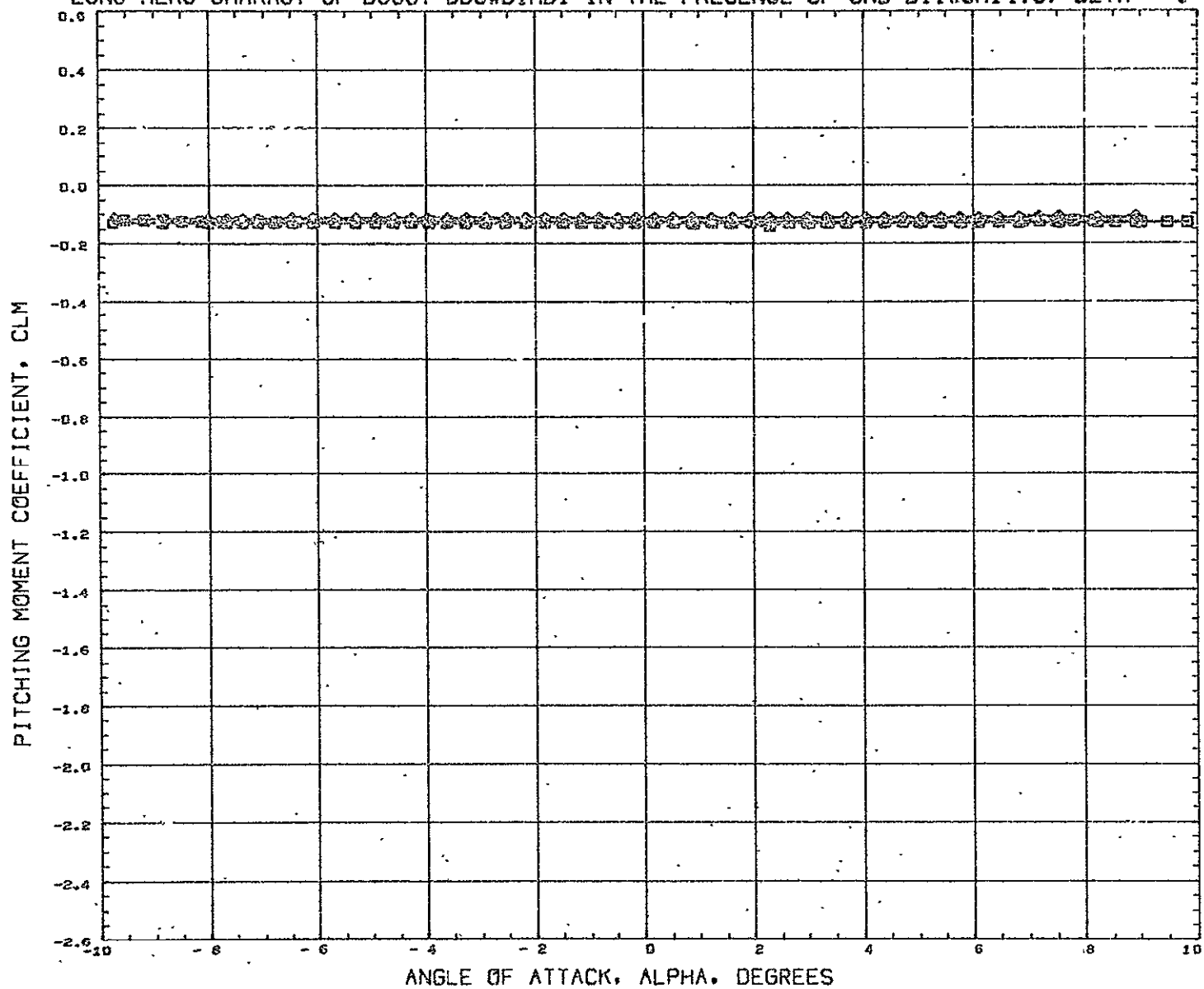


SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	7.000	BETA	0.000	ALPB	- 5.000
□	8.000	BETB	0.000	MACH	4.390
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0036	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



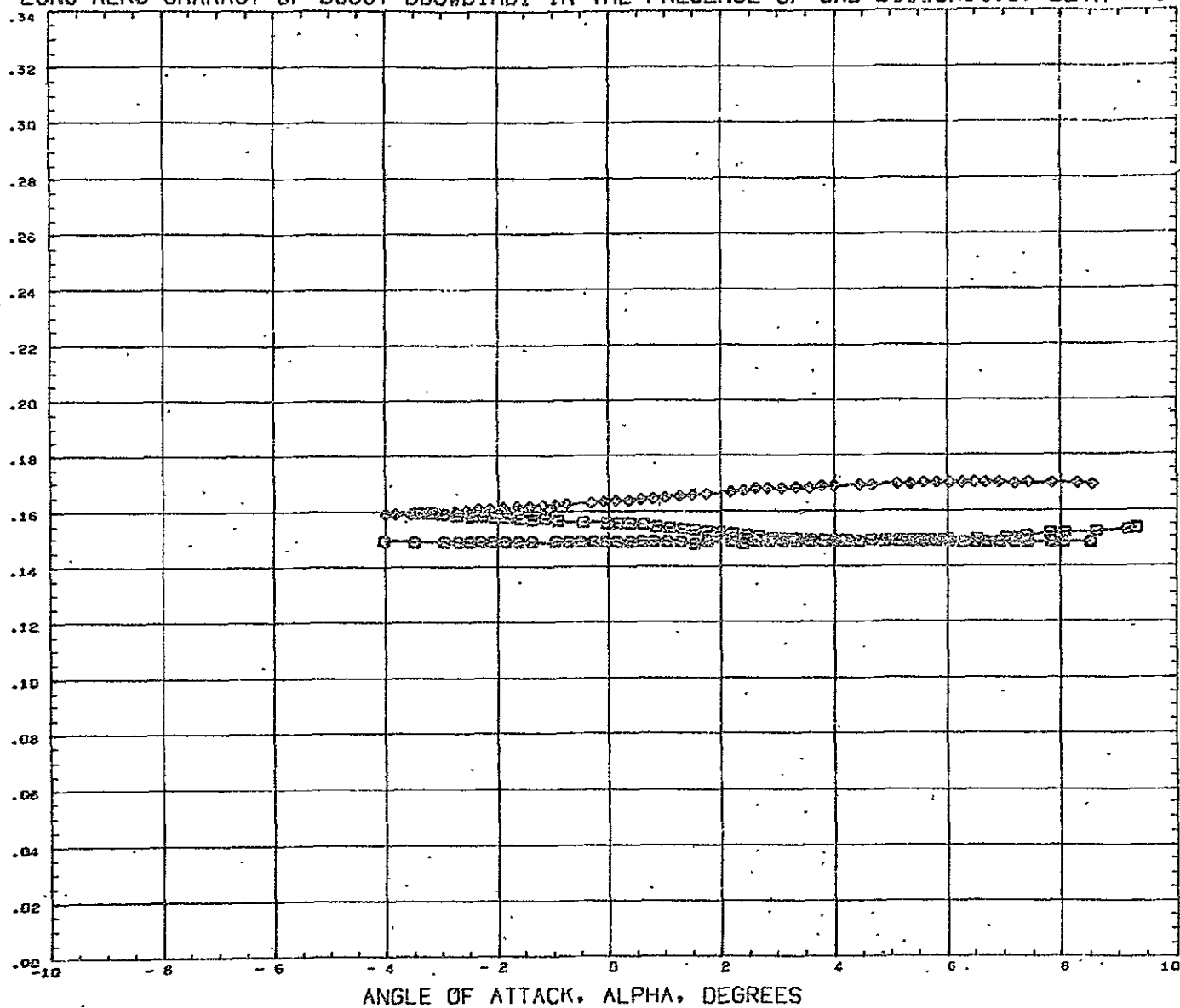
SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	10.000	BETA	0.000	ALFB	- 5.000
□	11.000	BETB	0.000	MACH	4.390
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SE IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRP	15.8990	IN
YNRP	0.0000	IN
ZNRP	2.0000	IN
SCALE	-0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

AXIAL FORCE COEFFICIENT, CA



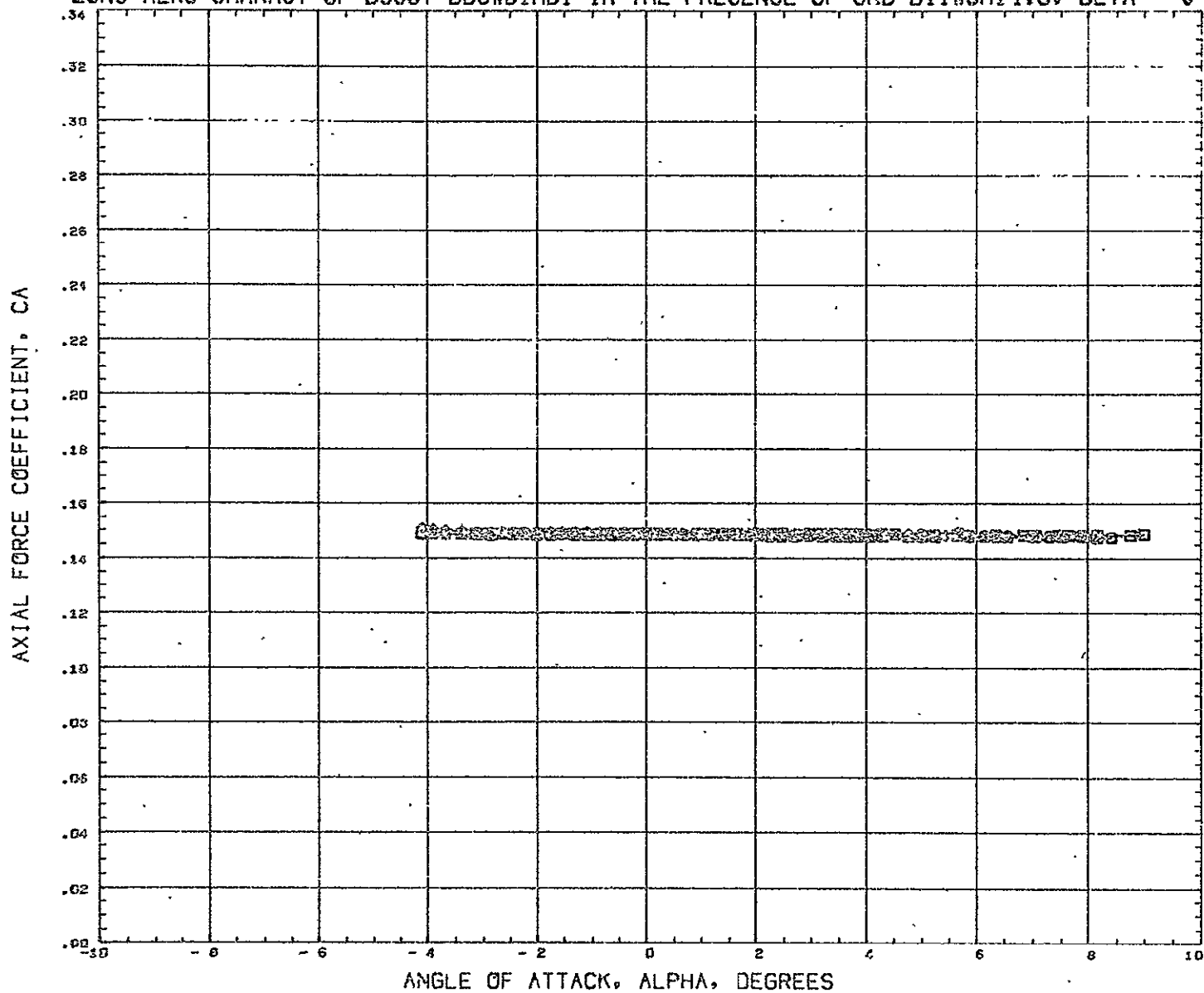
ANGLE OF ATTACK, ALPHA, DEGREES

SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	ALFB	5.000
○	4.000	BETA	0.000	MACH	4.390
□	5.000	BETB	0.000		
◇	6.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

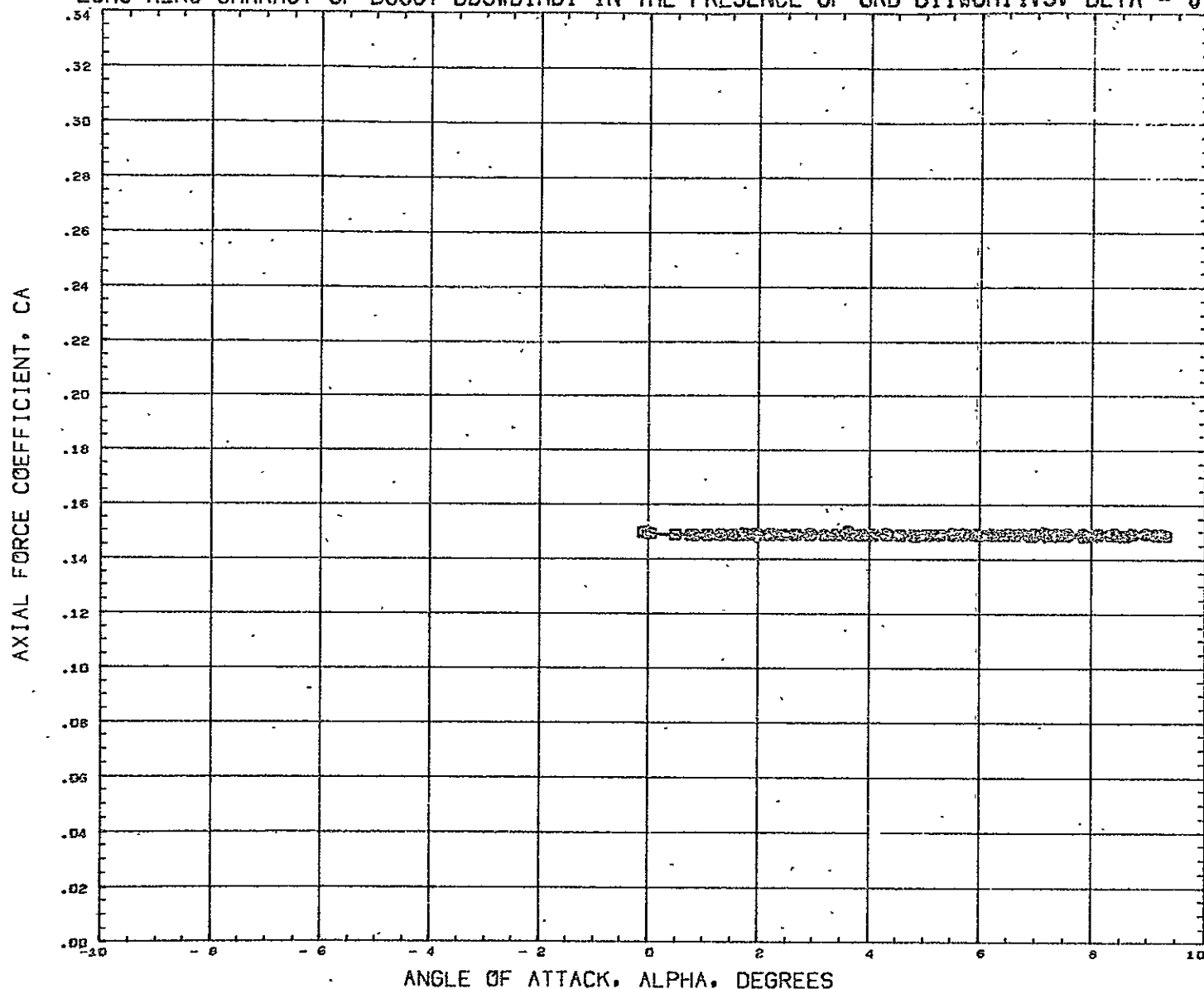


SYMBOL	SEFPOS	PARAMETRIC VALUES			
□	7.000	BETA	0.000	ALPB	5.000
□	8.000	BETB	0.000	NACH	4.390
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YNRP	0.0000	IN
ZNRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

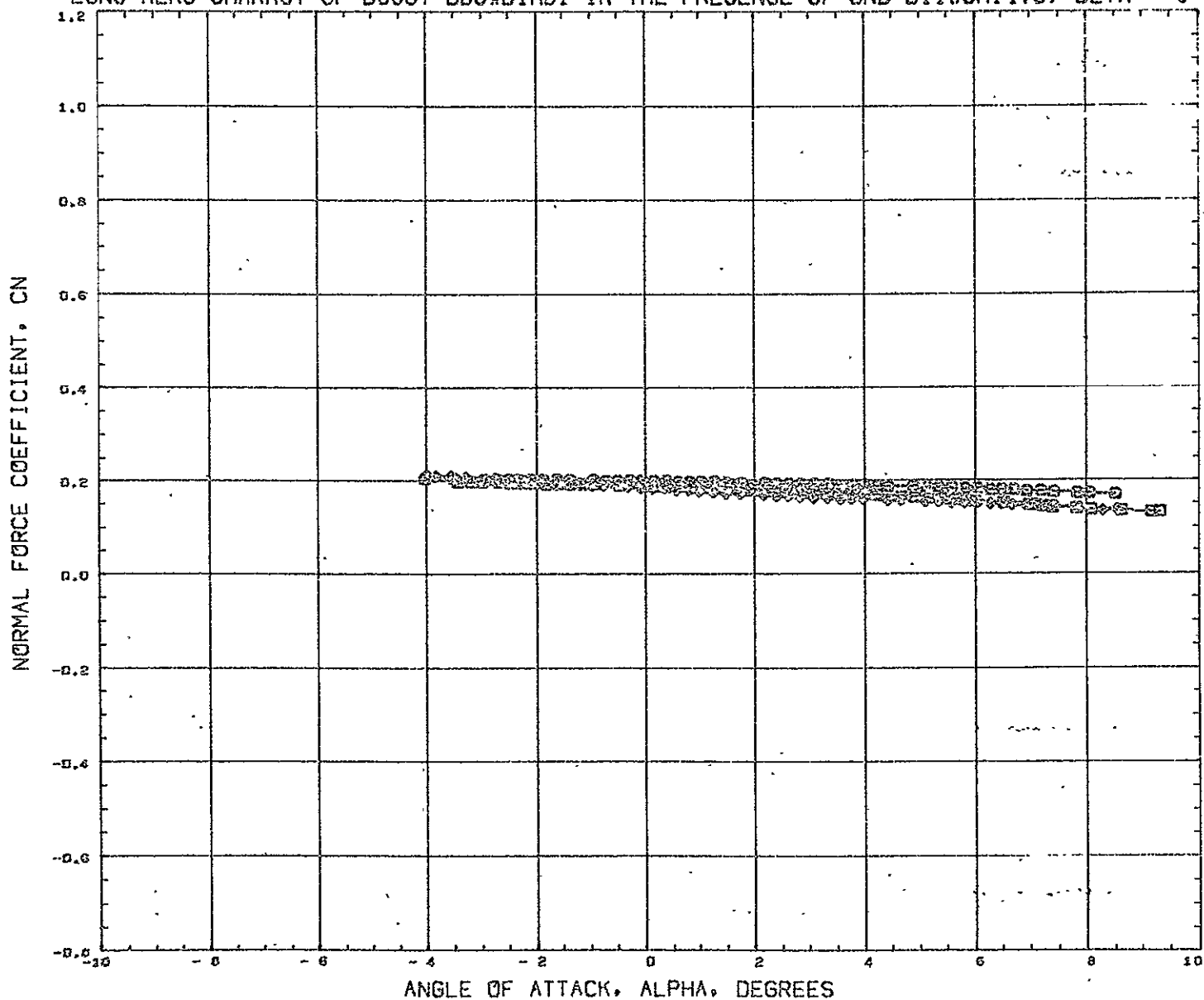


SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES		
□	10.000	BETA	0.000	ALPB	5.000
□	11.000	BETB	0.000	HACH	4.390
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XNRF	15.8999	IN
YNRF	0.0000	IN
ZNRF	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

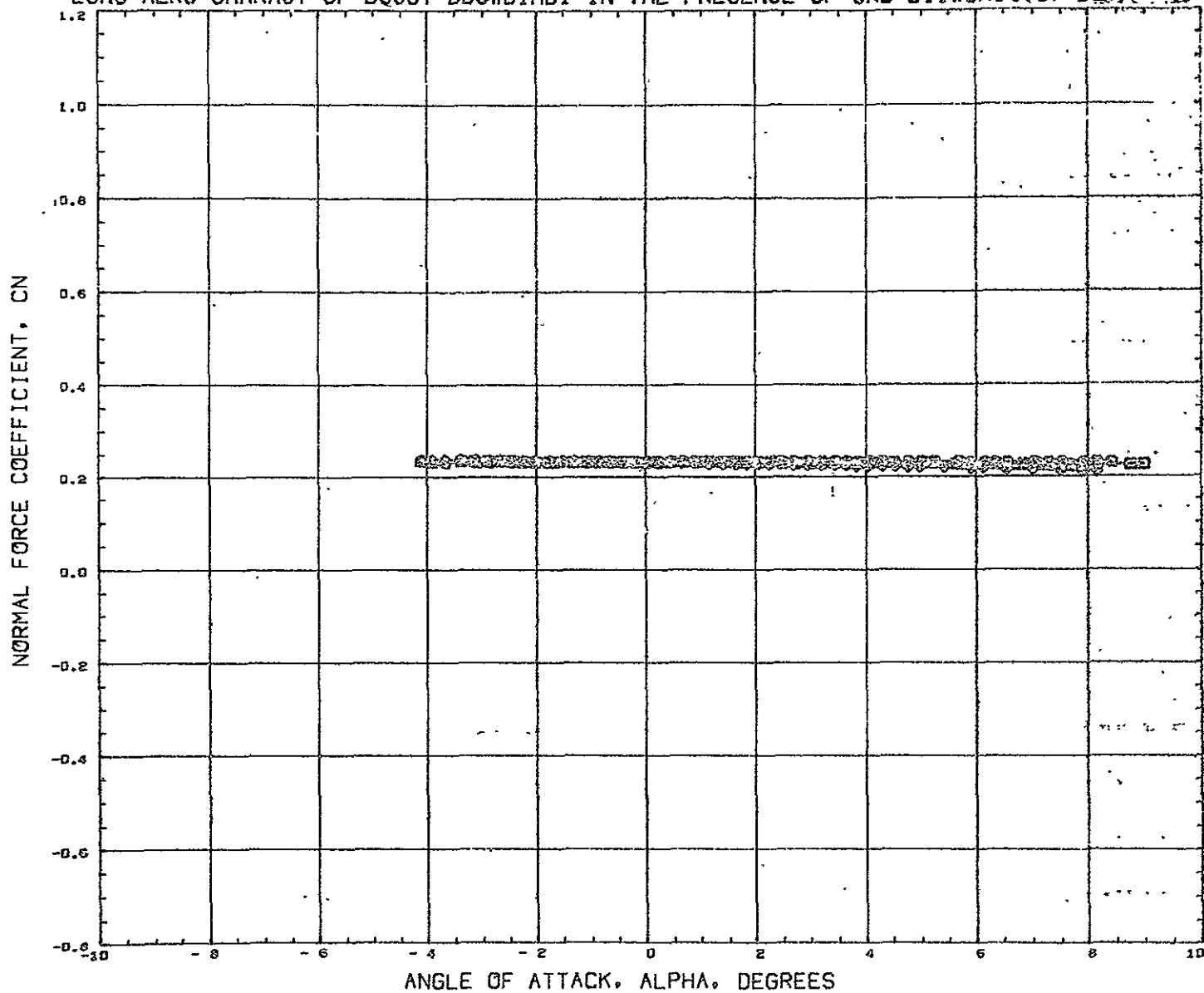
LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL		SEFPOS		PARAMETRIC VALUES		REFERENCE INFORMATION		
□	4.000	BETA	0.000	ALPB	5.000	REFS	54.6580	SQ IN
□	5.000	BETB	0.000	MACH	4.390	REFL	2.9920	IN
□	6.000					REFB	19.7000	IN
						XMRP	15.8990	IN
						YHRP	0.0000	IN
						ZHRP	2.0000	IN
						SCALE	0.0088	

REFERENCE FILE .0000

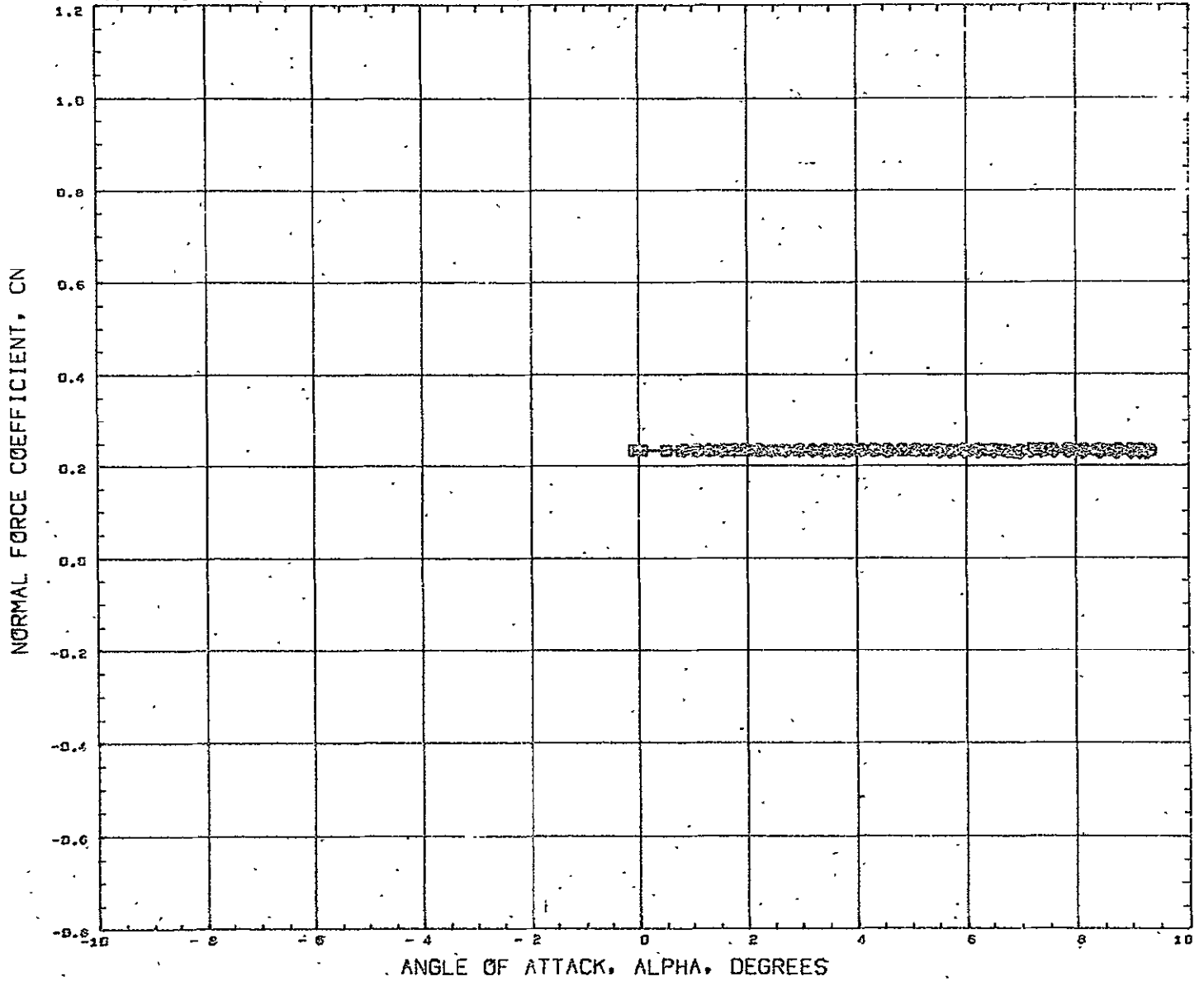
LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEFPOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	7.000	BETA	0.000	ALPB	5.000	REFS	54.6580	SG IN
□	8.000	BETB	0.000	HACH	4.390	REFL	2.9920	IN
◇	9.000					REFB	19.7000	IN
						XNRF	15.8990	IN
						YNRF	0.0000	IN
						ZHRP	2.0000	IN
						SCALE	0.0089	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5. BETA = 0

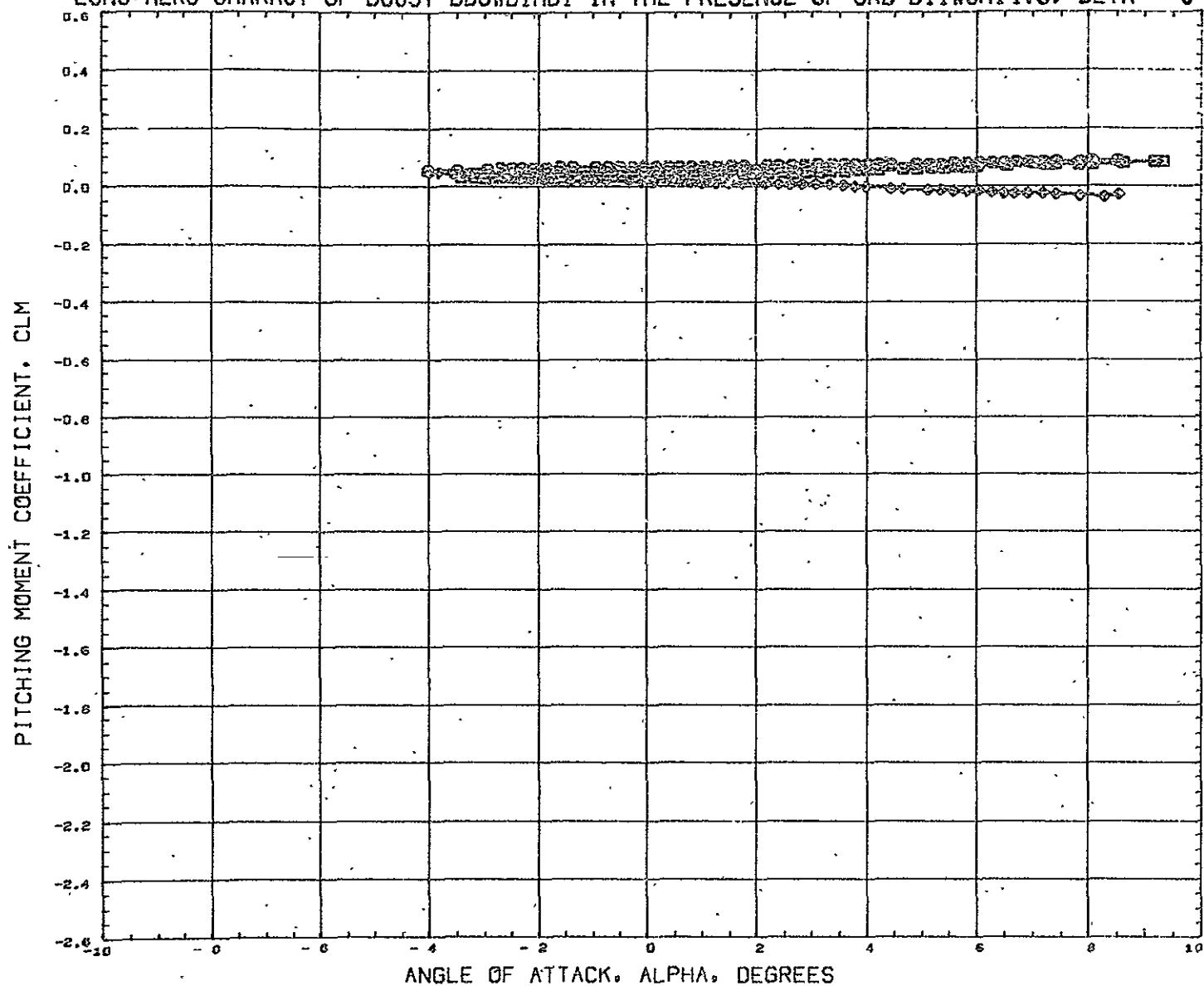


SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	10.000	BETA	0.000	ALFB	5.000
□	11.000	BETB	0.000	HACH	4.390
◇	12.000				

REFERENCE INFORMATION		
REFS	54.6580	50 IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

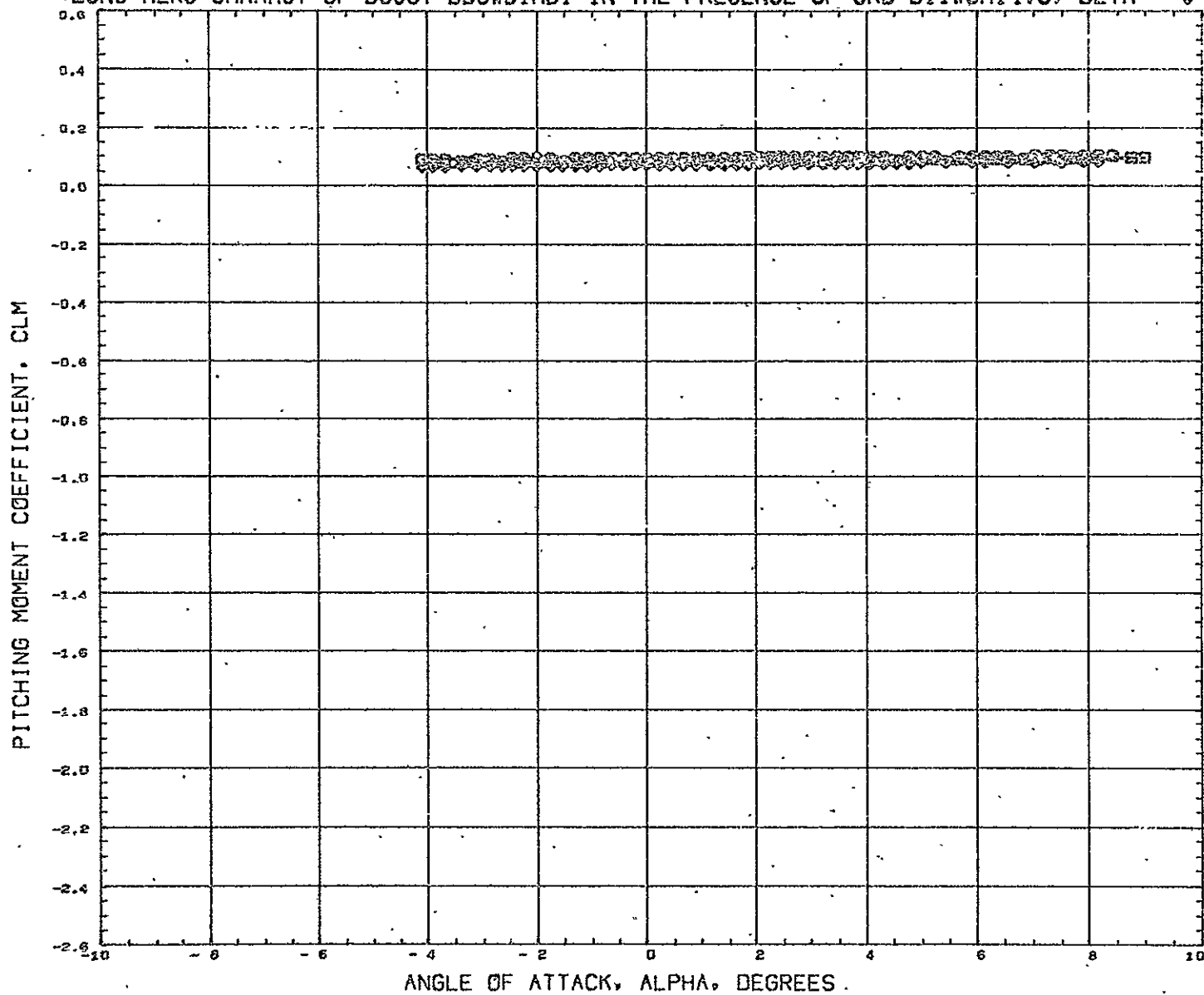
LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
		BETA	ALPB	HACH		REFS	SQ	IN
□	4.000	0.000	5.000			REFL	2.9920	IN
□	5.000	0.000	4.390			REFB	19.7000	IN
◇	6.000					XMRP	15.8990	IN
						YMRP	0.0000	IN
						ZMRP	2.0000	IN
						SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

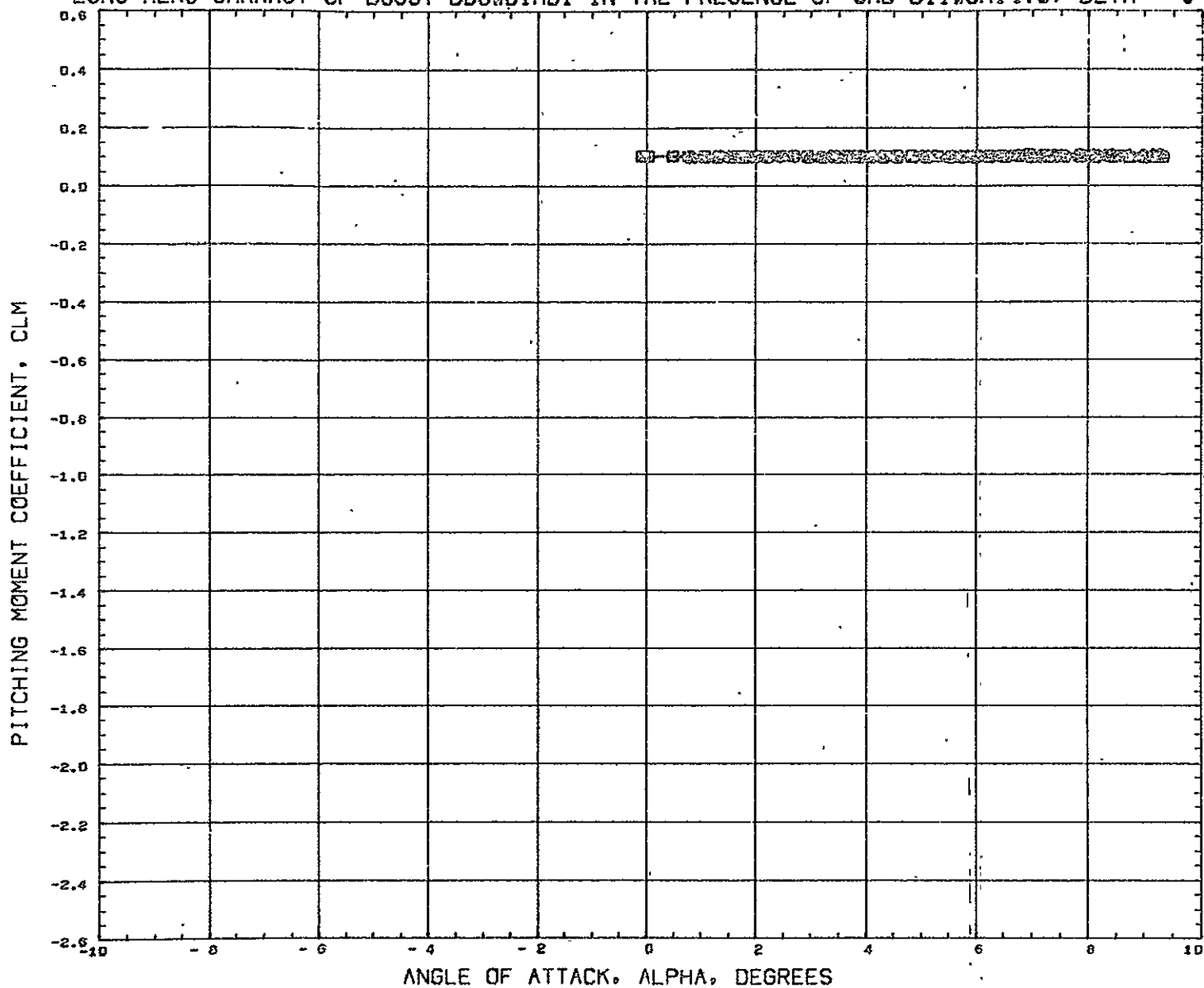


SYMBOL	SEFPOS	PARAMETRIC VALUES			
Q	7.000	BETA	0.000	ALPB	5.000
D	8.000	BETB	0.000	MACH	4.390
◇	9.000				

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT. OF BOOST BB3WB1HB1 IN THE PRESENCE OF ORB B11W6H14V5, BETA = 0

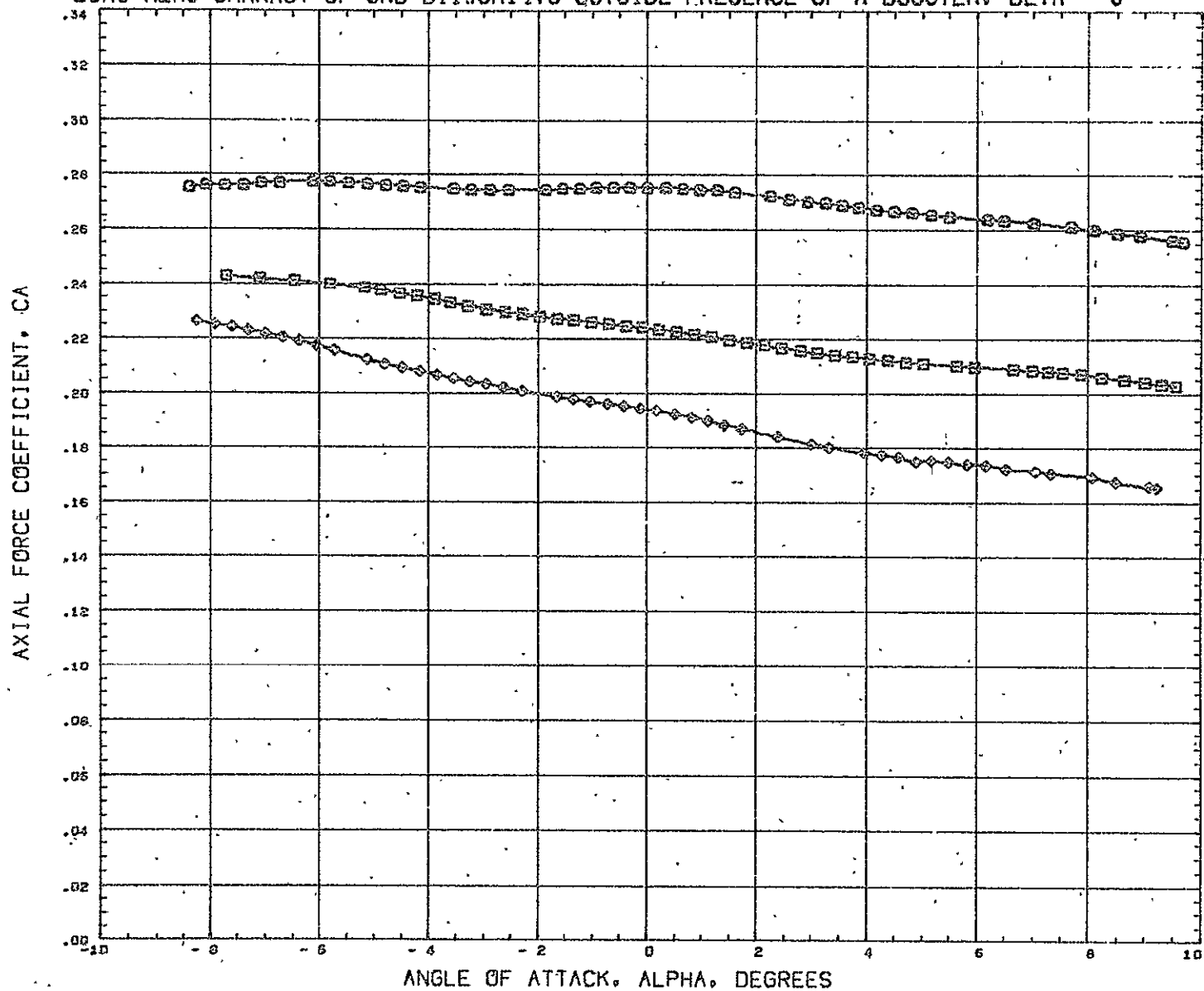


SYMBOL	SEPFOS	BETA	PARAMETRIC VALUES	ALFB	5.000
□	10.000	BETA	0.000	ALFB	5.000
□	11.000	BETB	0.000	HACH	4.390
◇	12.000				

REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LONG AERO CHARACT OF ORB B11W6H14V5 OUTSIDE PRESENCE OF A BOOSTER, BETA = 0

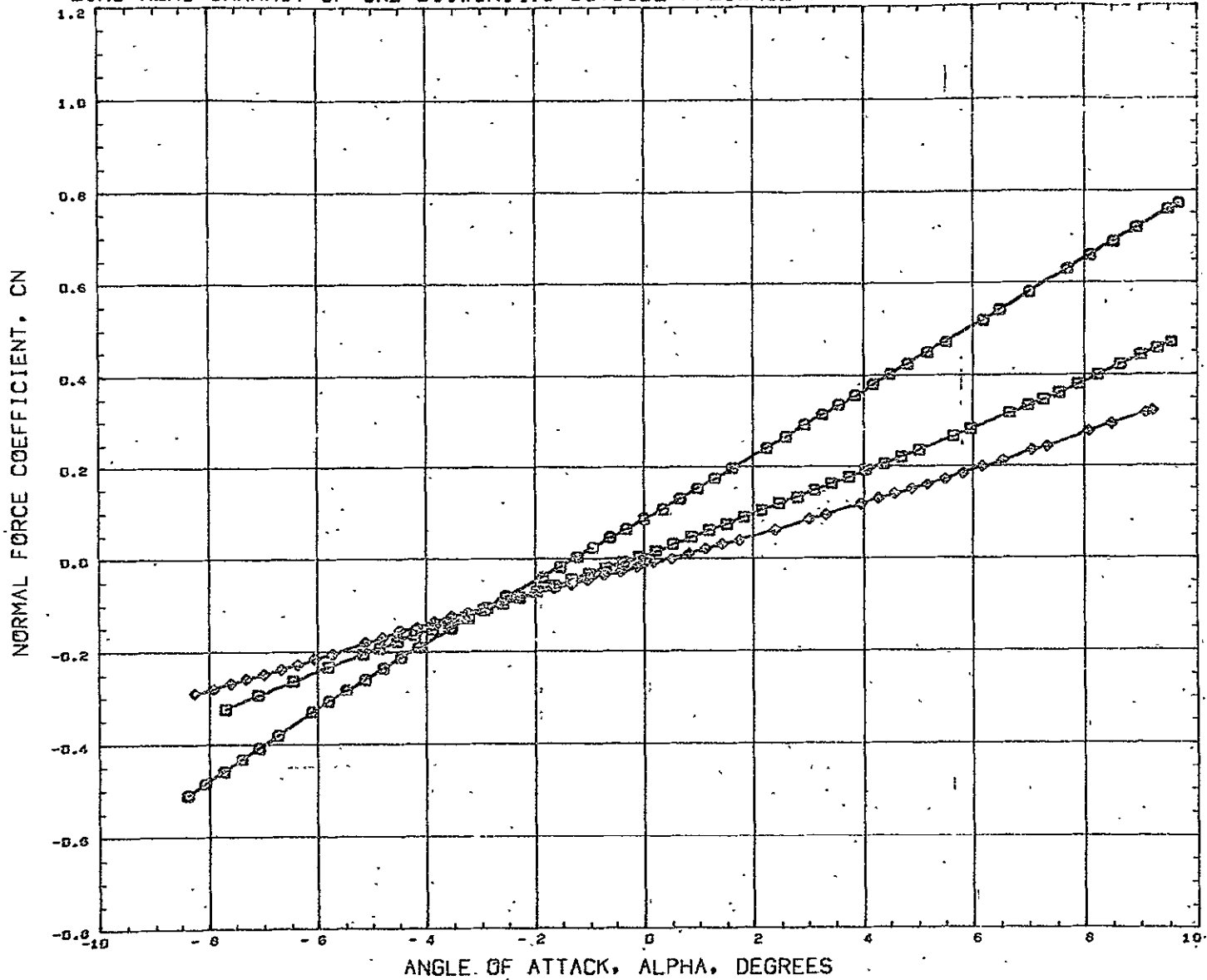


SYMBOL	MACH	PARAMETRIC VALUES
□	1.010	SEFFOS 15.000 BETA 0.000
◇	2.990	
◇	4.390	

REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.0540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF ORB B11W6H14V5 OUTSIDE PRESENCE OF A BOOSTER, BETA = 0



SYMBOL	MACH	PARAMETRIC VALUES
○	1.810	SEFFOS 15.000 BETA 0.000
□	2.990	
◇	4.390	

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRF	9.3880	IN
YMRF	0.0000	IN
ZMRF	1.4600	IN
SCALE	0.0088	

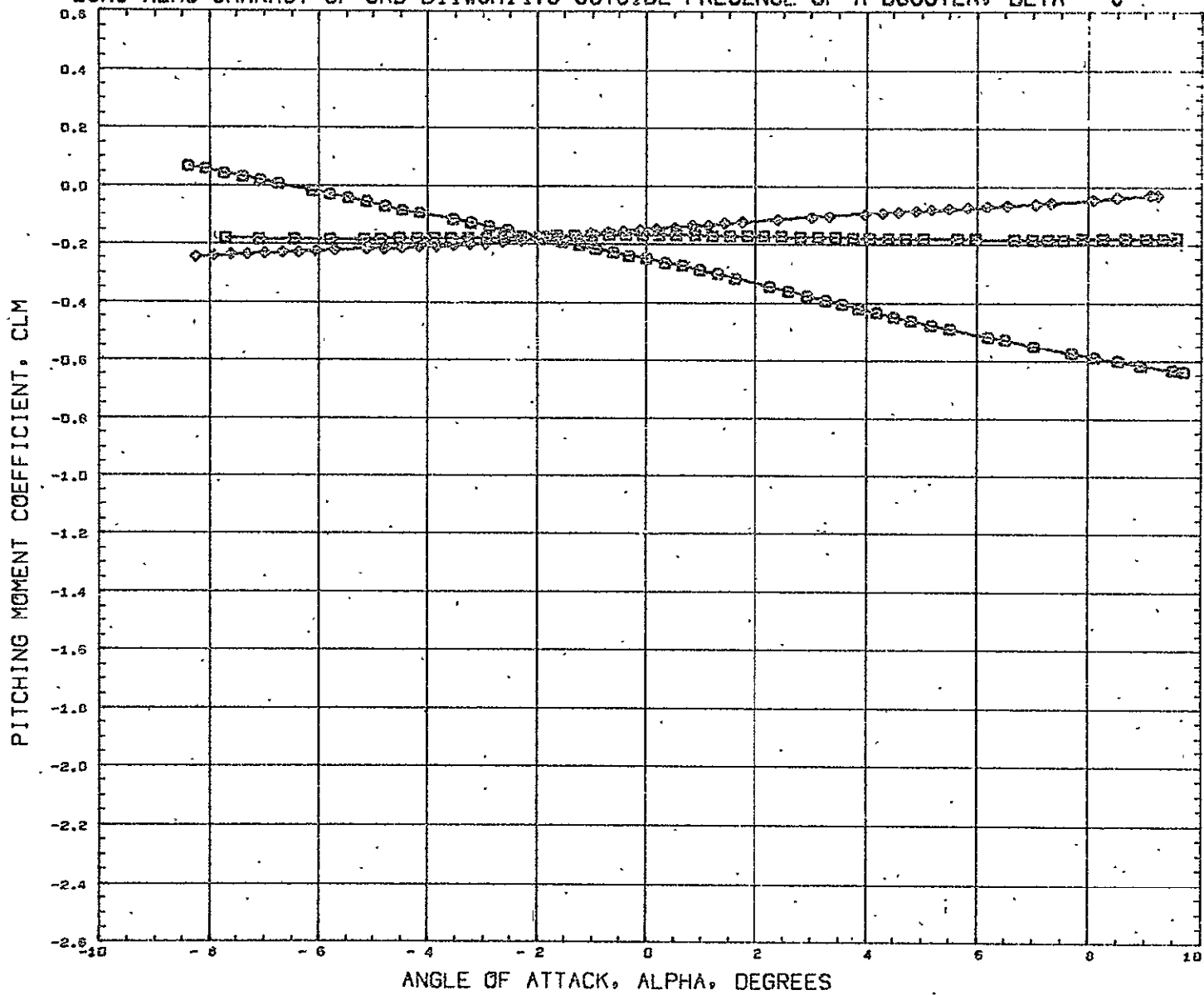
REFERENCE FILE .0000

MSC S-28 ORBITER B11W6H14V5 ALONE

(RCH029) 22 JAN 71

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LONG AERO CHARACT OF ORB B11W6H14V5 OUTSIDE PRESENCE OF A BOOSTER; BETA = 0

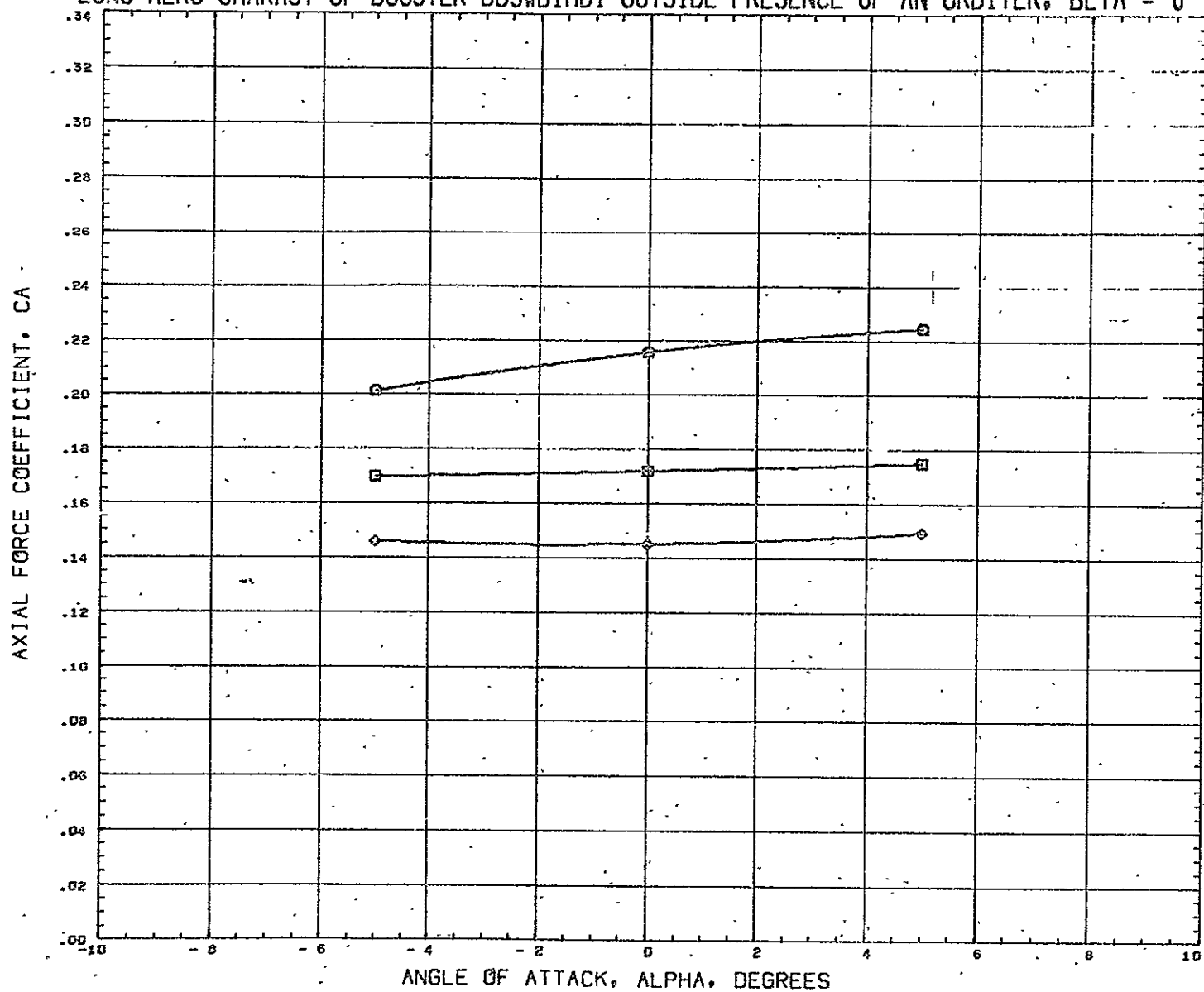


SYMBOL	MACH	PARAMETRIC VALUES
○	1.010	SEFFOS 15.000 BETA 0.000
□	2.990	
◇	4.390	

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRF	9.3880	IN
YHRF	0.0000	IN
ZHRF	1.4600	IN
SCALE	0.0088	

REFERENCE FILE .0000

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 OUTSIDE PRESENCE OF AN ORBITER, BETA = 0



SYMBOL MACH PARAMETRIC VALUES
 □ 1.810 SEPP05 15.000 BETB 0.000
 ◇ 2.990
 ○ 4.390

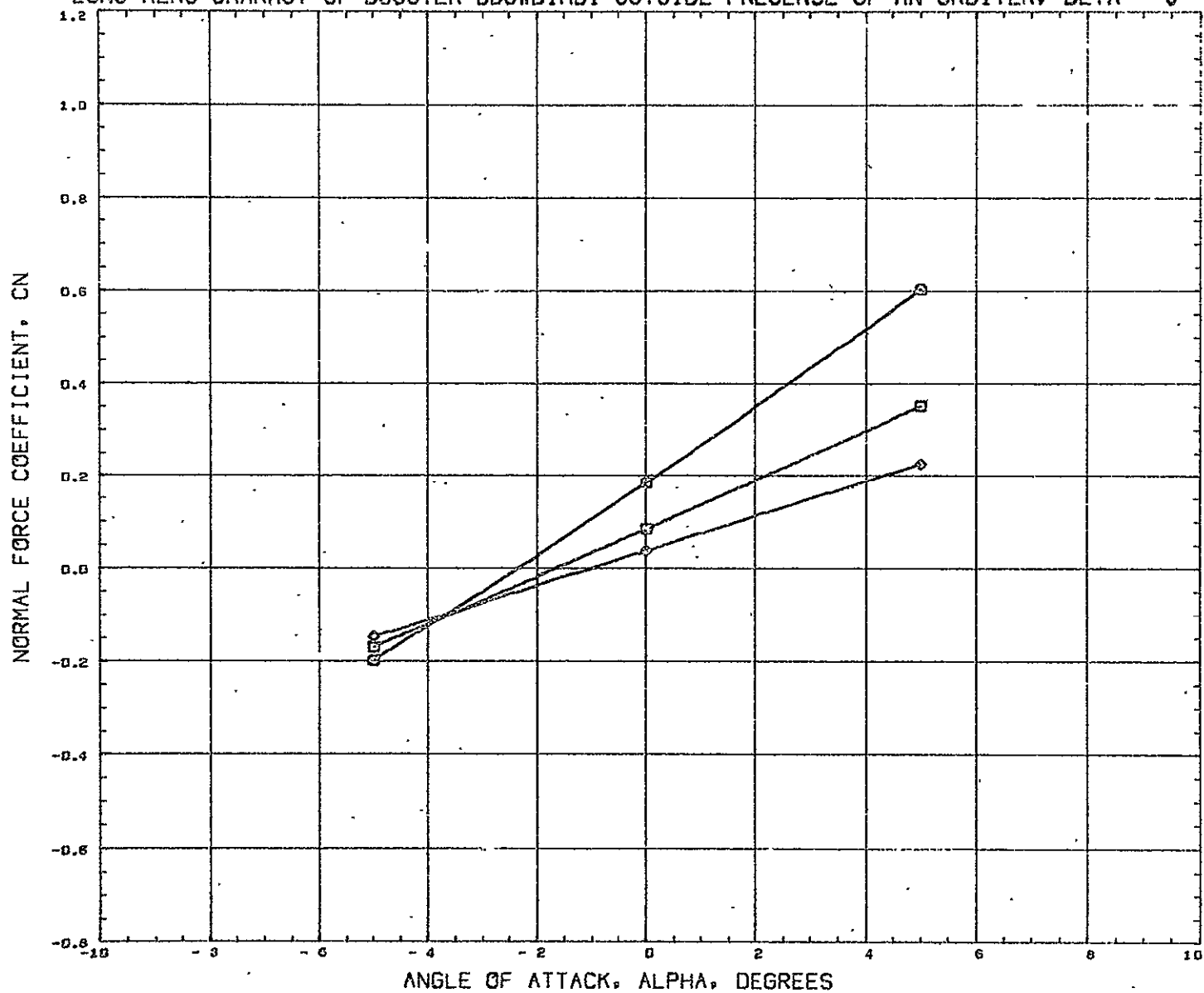
REFERENCE INFORMATION
 REFS 54.6580 SQ IN
 REFL 2.9920 IN
 REFB 19.7000 IN
 XMRP 15.8990 IN
 YMRP 0.0000 IN
 ZMRP 2.0000 IN
 SCALE 0.0088

DATA HIST. CODE *G

BOOSTER BB3WB1HB1, ORB OFF

(RCH100) 03 FEB 71 PAGE 184

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 OUTSIDE PRESENCE OF AN ORBITER, BETA = 0



SYMBOL	MACH	PARAMETRIC VALUES
○	1.010	SEFFOS 15.000 BETB 0.000
□	2.990	
◇	4.390	

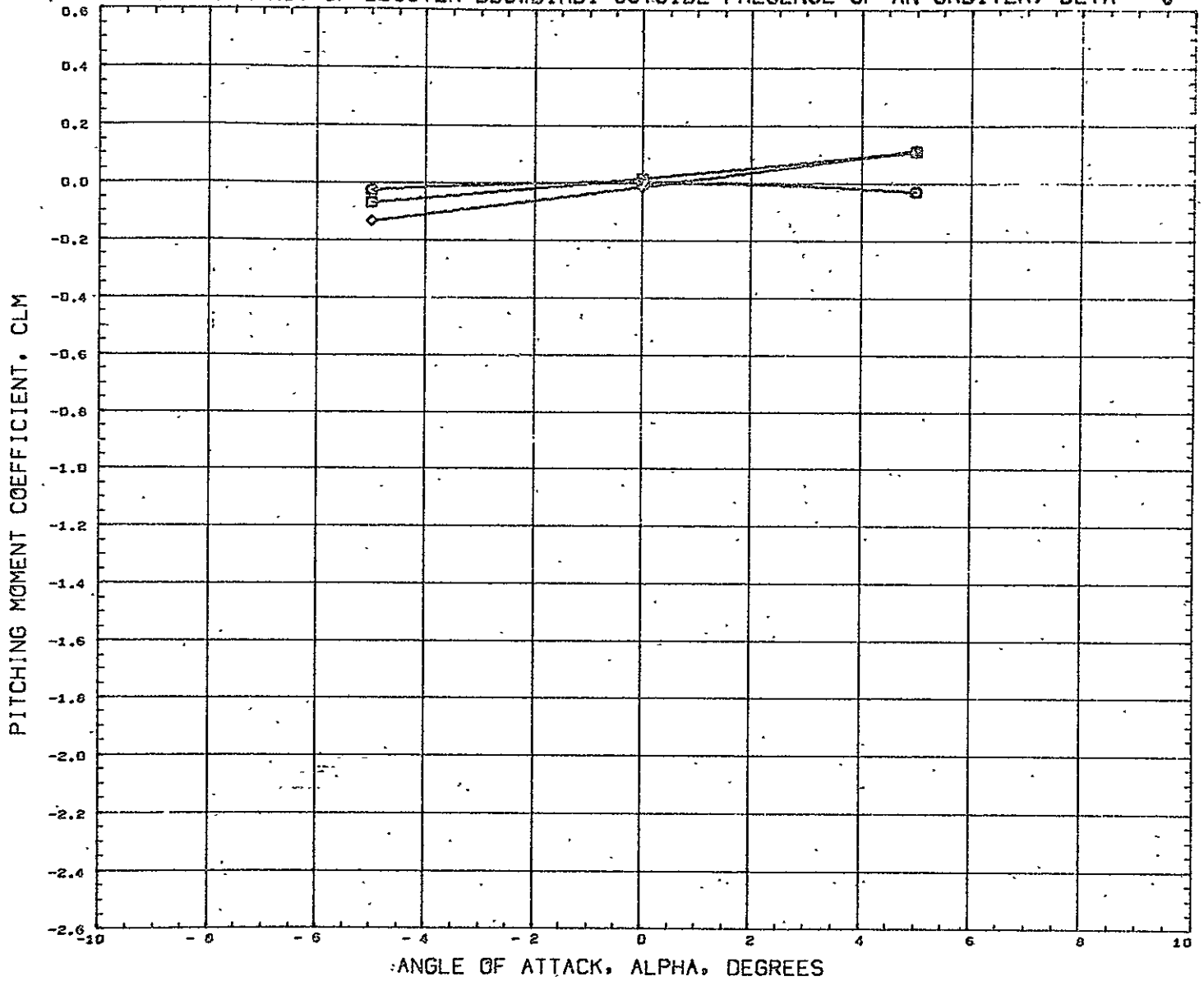
REFERENCE INFORMATION		
REFS	54.6580	SQ-IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

DATA HIST. CODE #6

BOOSTER BB3WB1HB1, ORB OFF

(RCH100) 03 FEB 71 PAGE 185

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 OUTSIDE PRESENCE OF AN ORBITER, BETA = 0



SYMBOL	MACH	PARAMETRIC VALUES
□	1.810	SEFPOS 15.000 BETB 0.000
◇	2.990	
○	4.390	

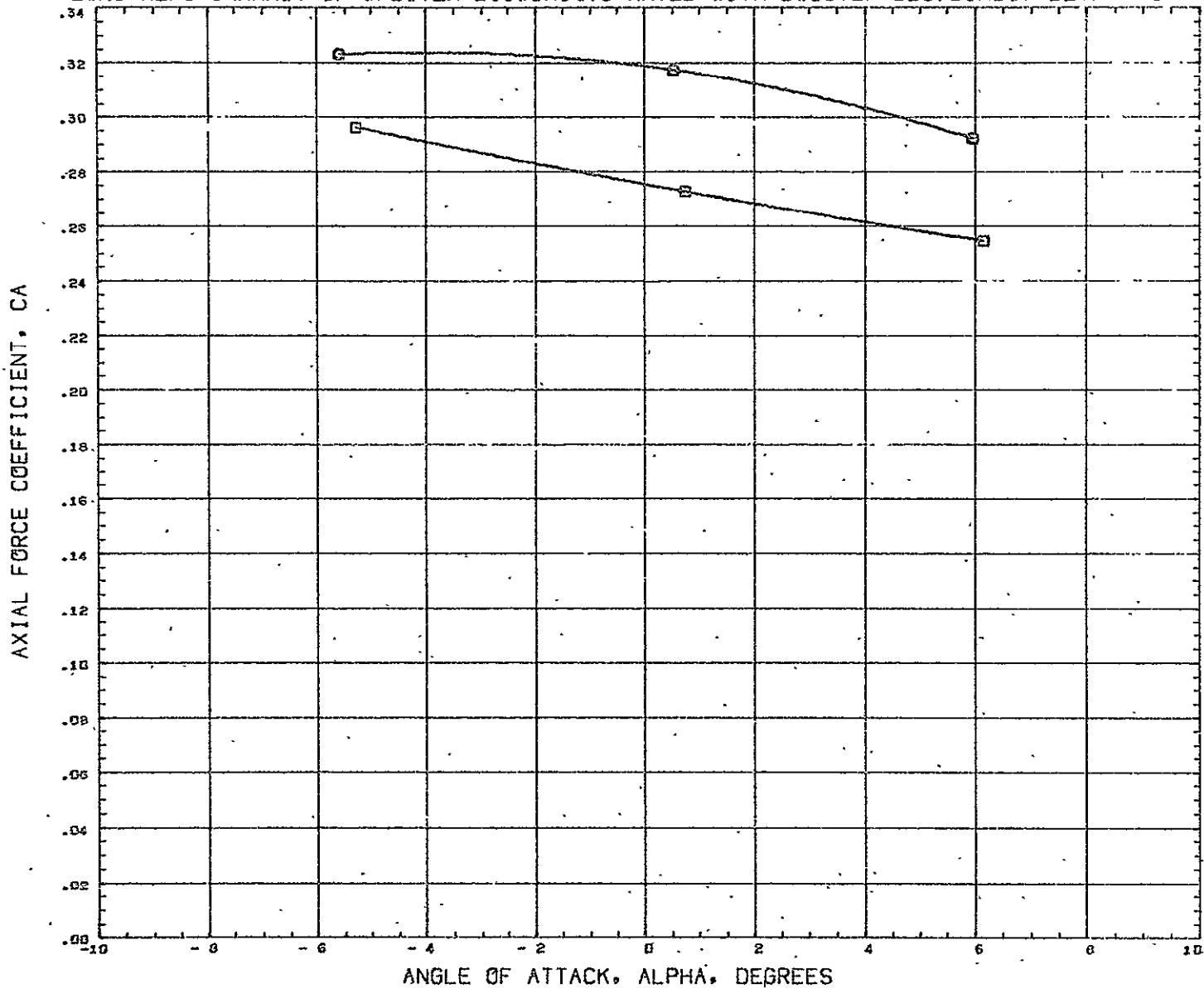
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

DATA HIST. CODE *G

BOOSTER BB3WB1HB1, ORB OFF

(RCH100) 03 FEB 71 PAGE 186

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1, BETA = 0



SYMBOL	SEPP05	PARAMETRIC VALUES		
○	13.000	BETA	0.000	MACH 1.010
□	14.000	BETB	0.000	

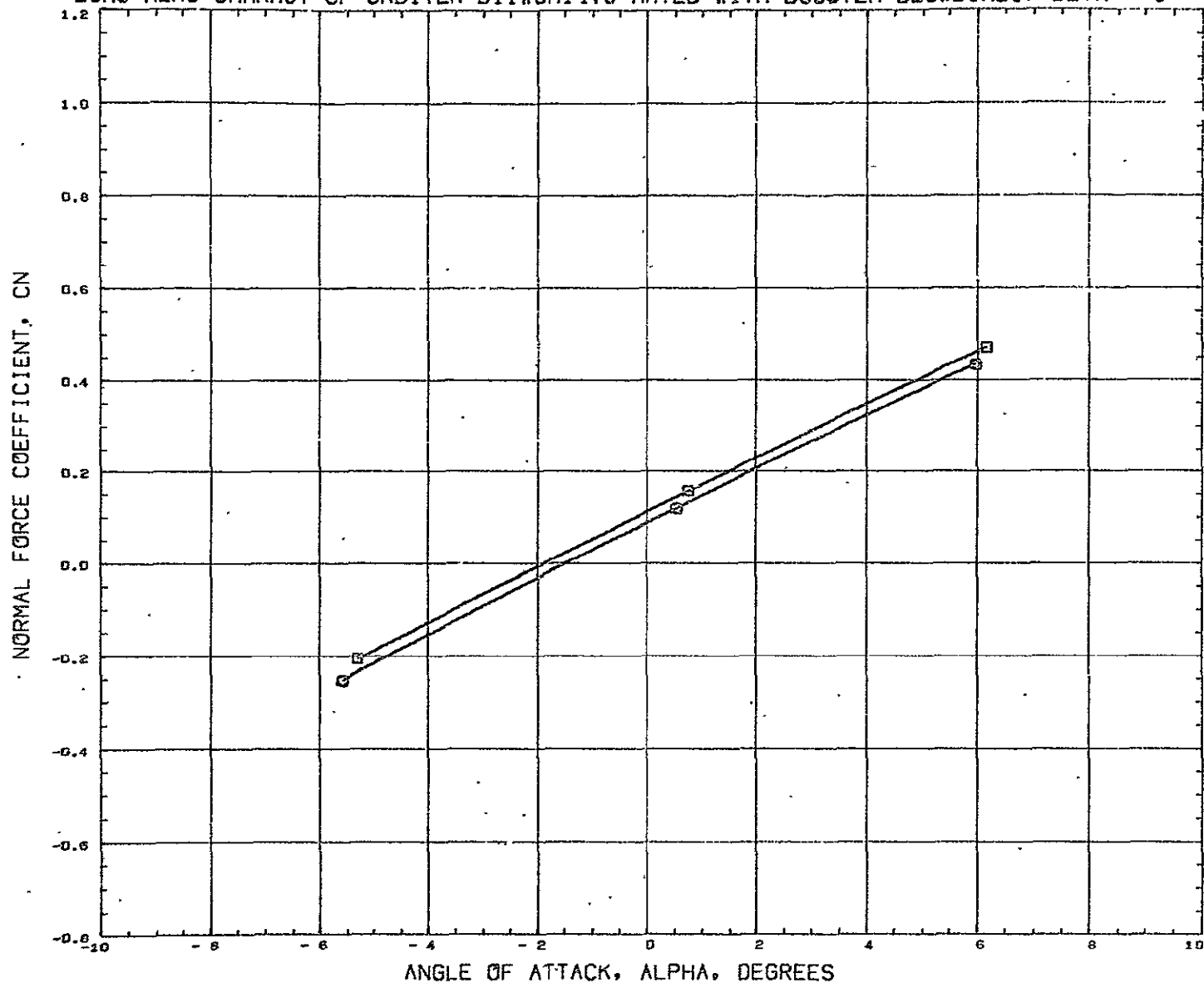
REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

DATA HIST. CODE #6

B11W6H14V5/BB3WB1HB1 MATED

(RCH103) 03 FEB 71 PAGE 187

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1, BETA = 0



SYMBOL	SEPPOS	PARAMETRIC VALUES			
□	13.000	BETA	0.000	HACH	1.610
□	14.000	BETB	0.000		

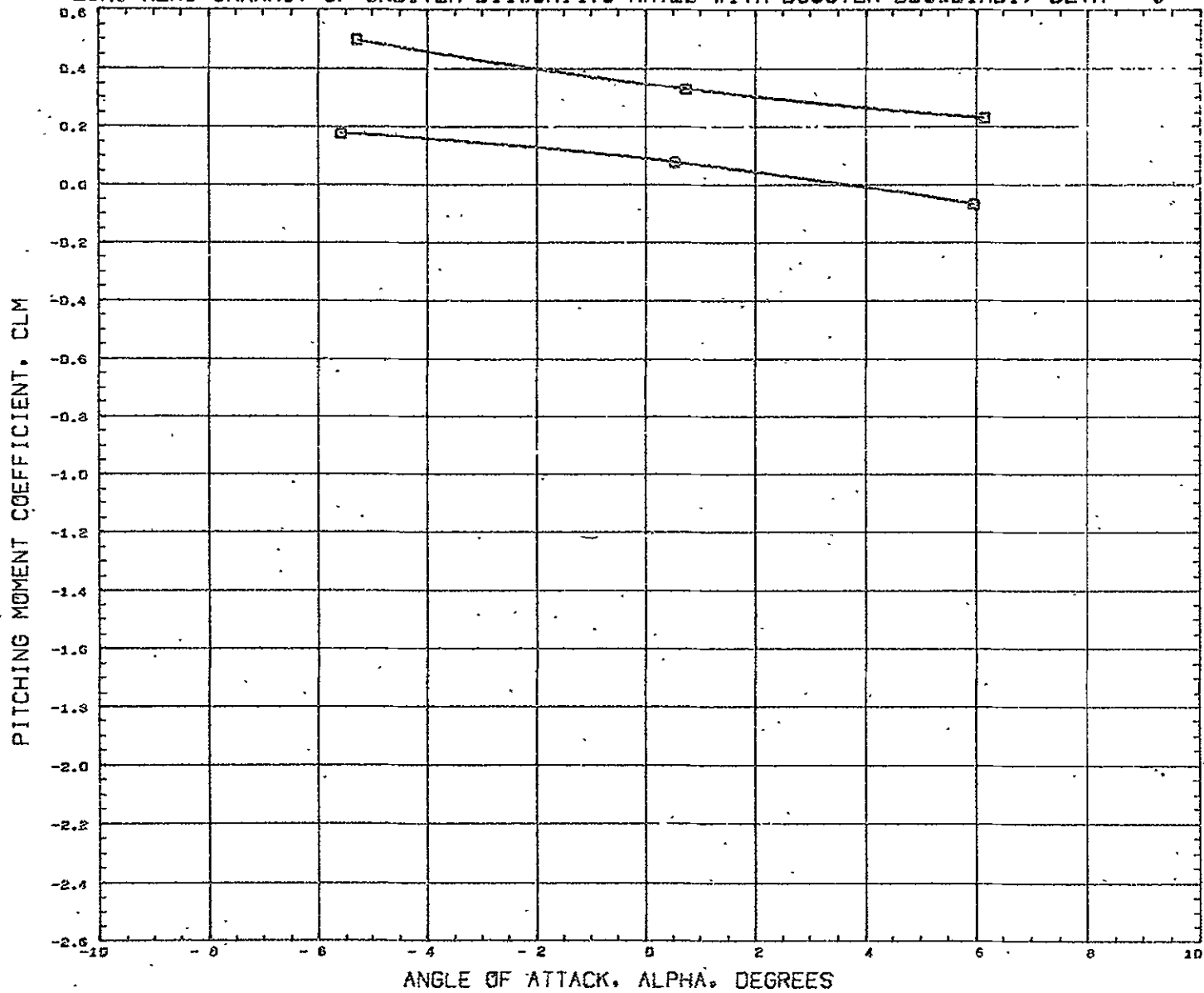
REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0098	

DATA HIST. CODE %G

B11W6H14V5/BB3WB1HB1 MATED

(RCH103) 03 FEB 71 PAGE 188

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	HACH	1.810
□	13.000	BETA	0.000		
□	14.000	BETB	0.000		

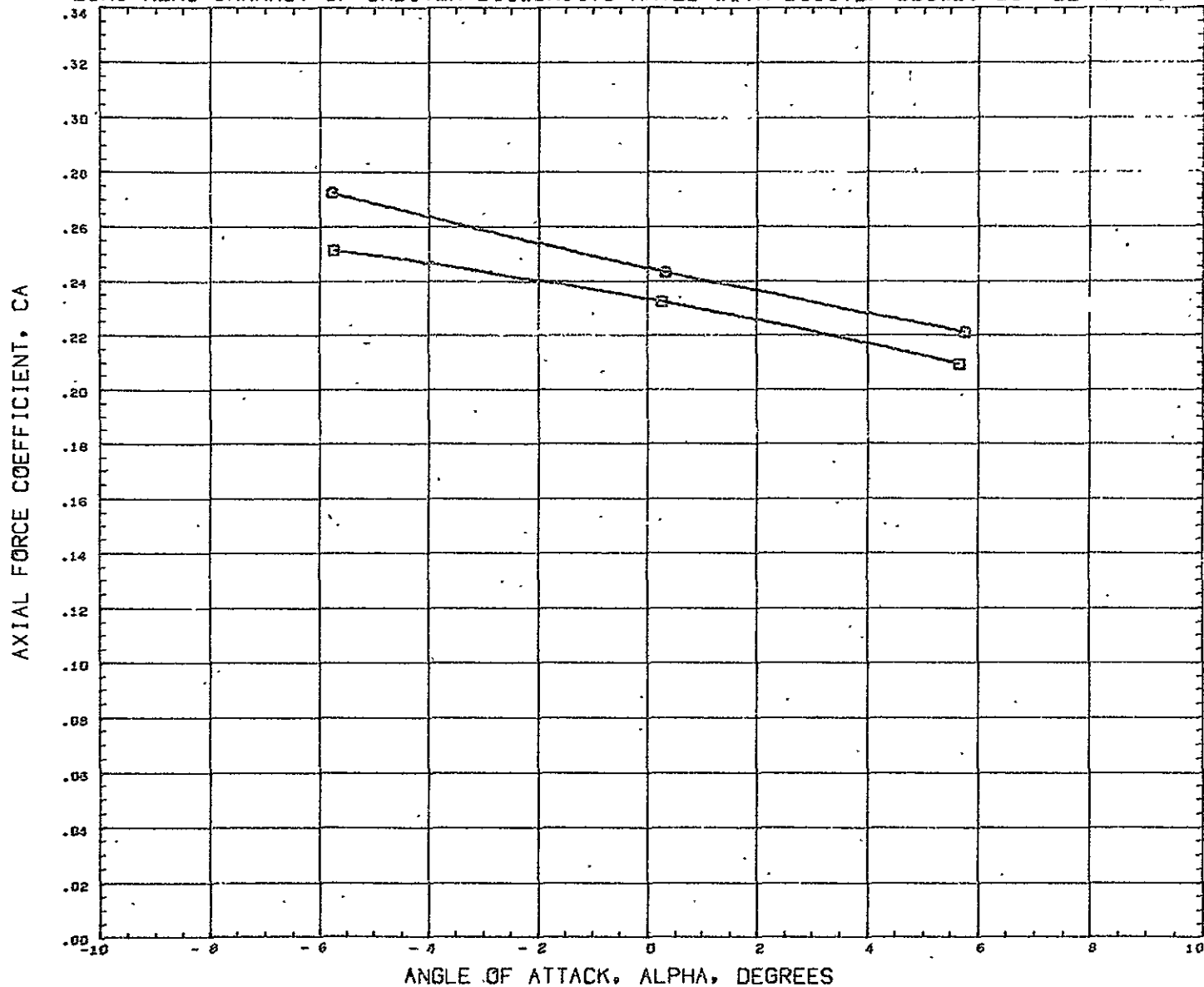
REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

DATA HIST. CODE 46

B11W6H14V5/BB3WB1HB1 MATED

(RCH103) 03 FEB 71 PAGE 189

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1. BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES		
○	13.000	BETA	0.000	NACH 2.990
□	14.000	BETB	0.000	

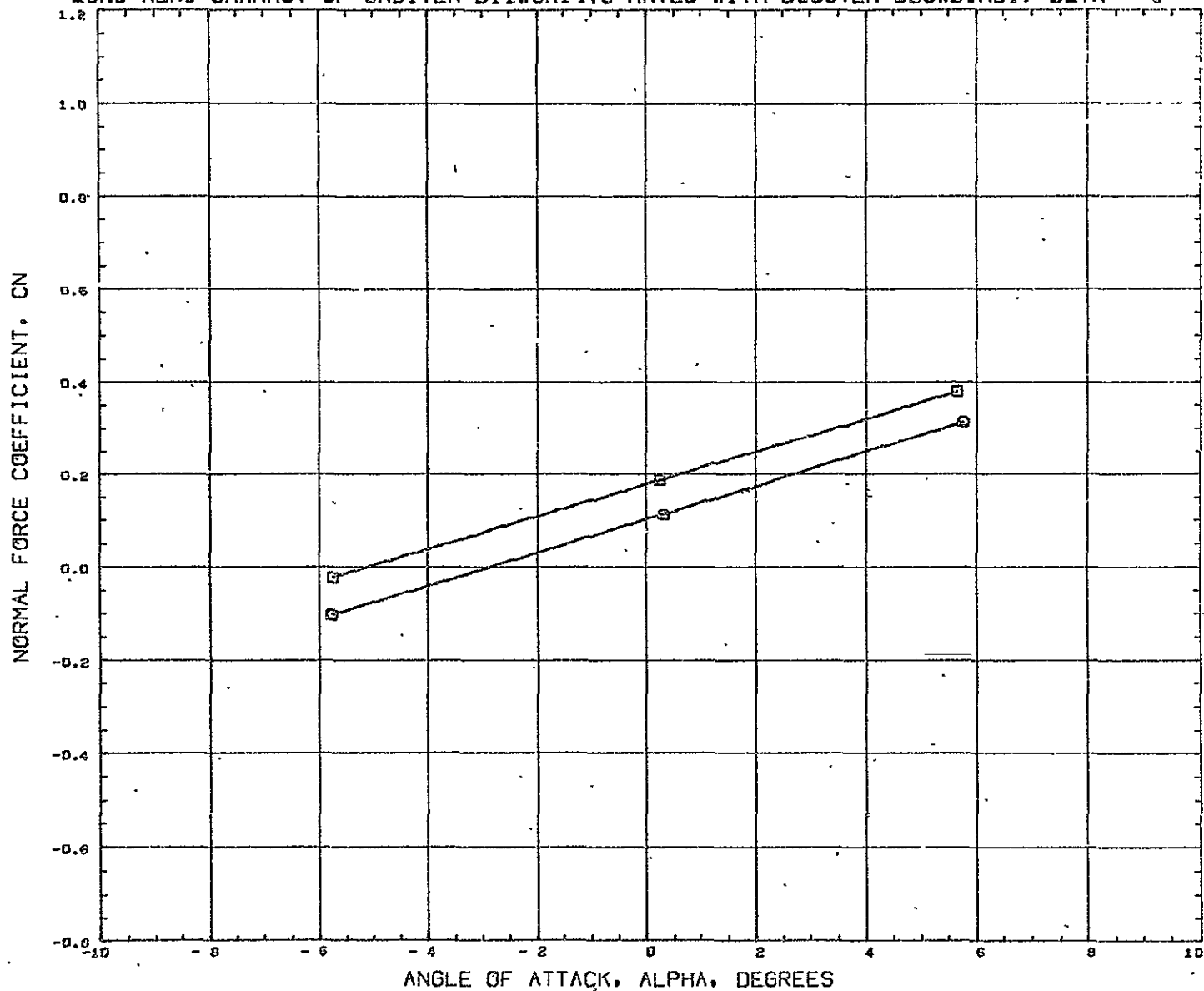
REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.6540	IN
REFB	12.0000	IN
XHRF	9.3880	IN
YHRF	0.0000	IN
ZHRF	1.4600	IN
SCALE	0.0088	

DATA HIST. CODE *G

B11W6H14V5/BB3WB1HB1 MATED

(RCH104) 03 FEB 71 PAGE 190

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1, BETA = 0



SYMBOL	SEPP05	PARAMETRIC VALUES		
□	13.000	BETA	0.000	MACH 2.990
□	14.000	BETA	0.000	

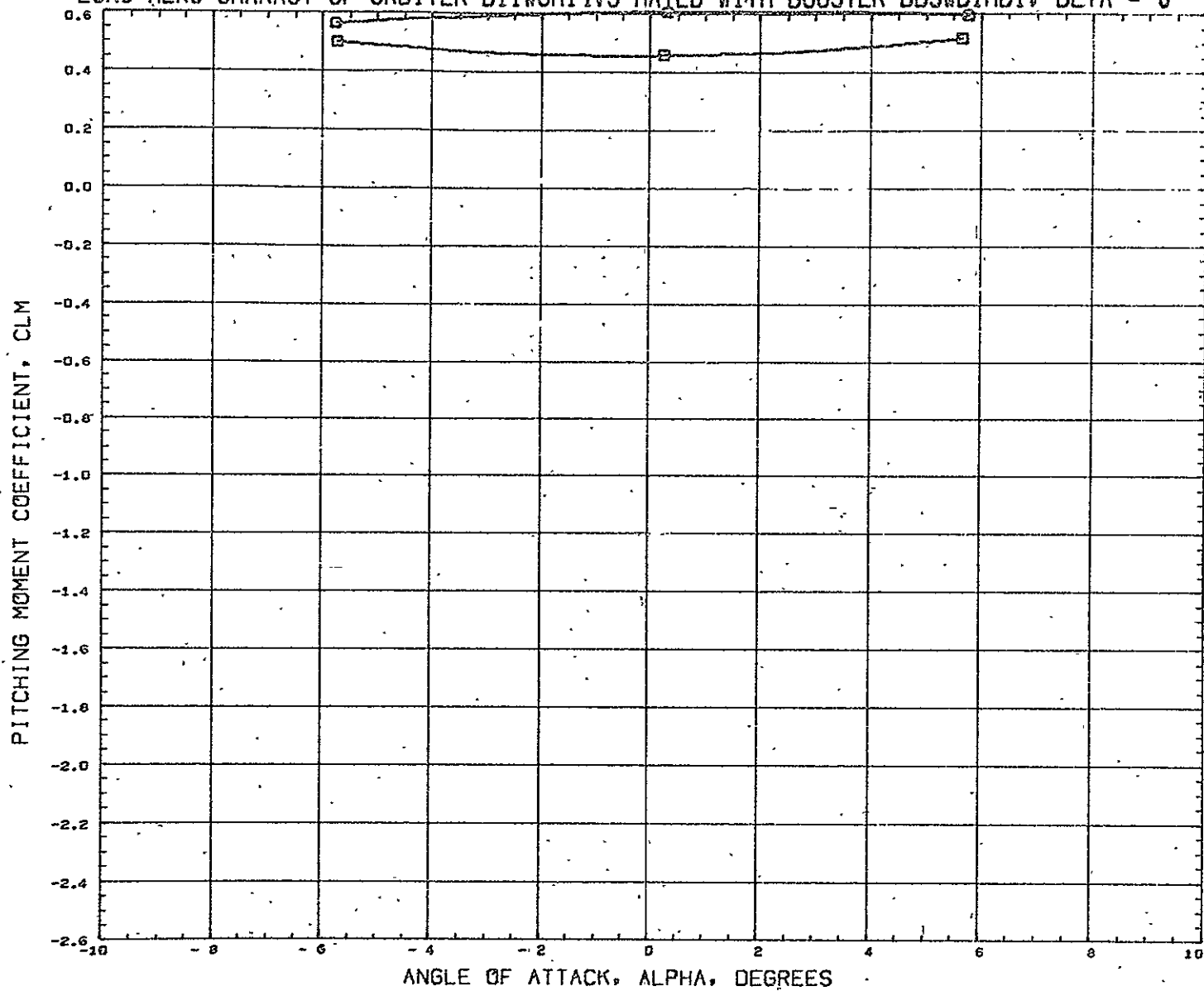
REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3880	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	0.0088	

DATA HIST. CODE *G

B11W6H14V5/BB3WB1HB1 MATED

(RCH104) 03 FEB 71 PAGE 191

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES		
○	13.000	BETA	0.000	MACH 2.990
□	14.000	BETB	0.000	

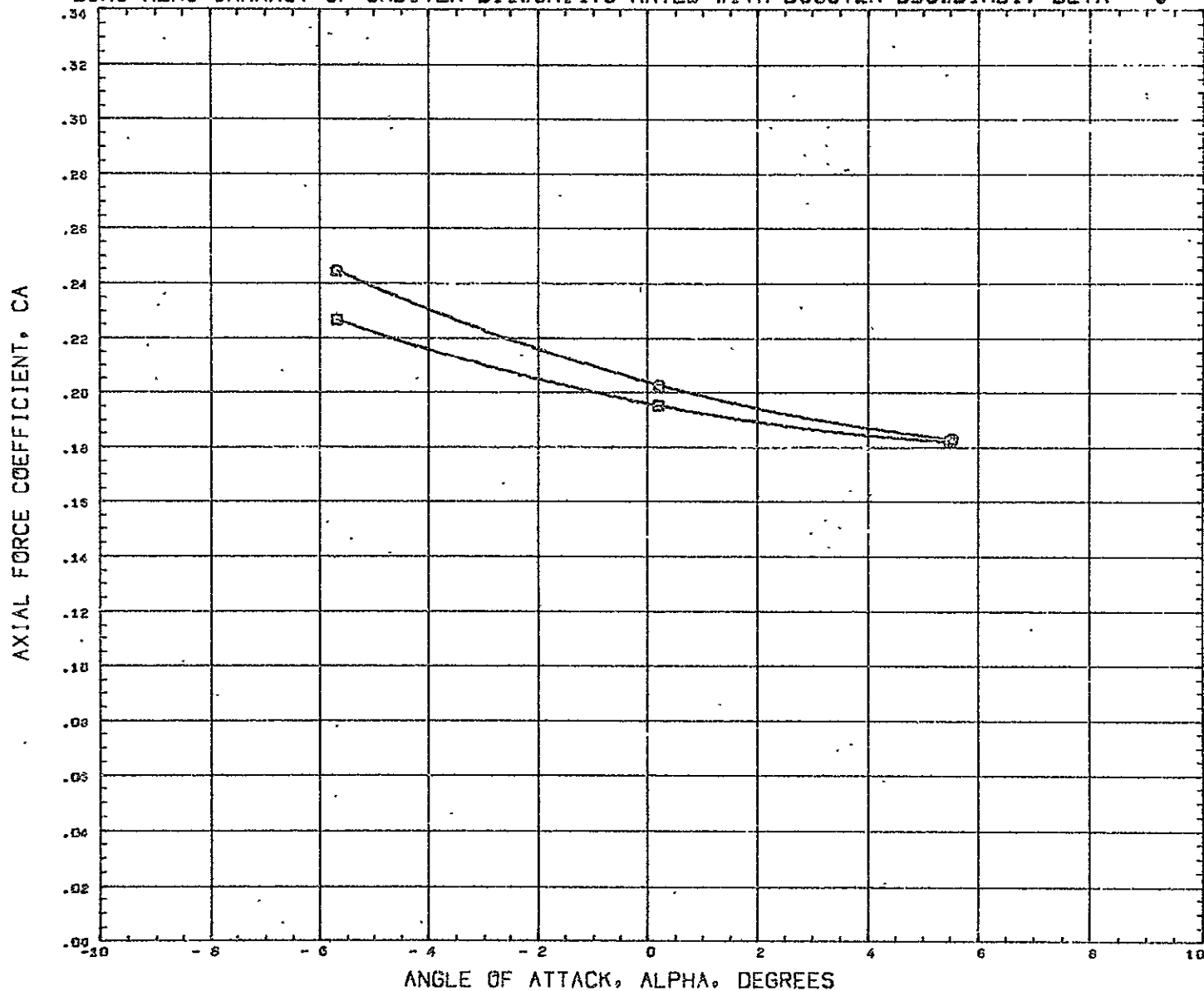
REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YNRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

DATA HIST. CODE #0

B11W6H14V5/BB3WB1HB1 MATED

(RCH104) 03 FEB 71 PAGE 192

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES		
○	13.000	BETA	0.000	MACH 4.390
□	14.000	BETB	0.000	

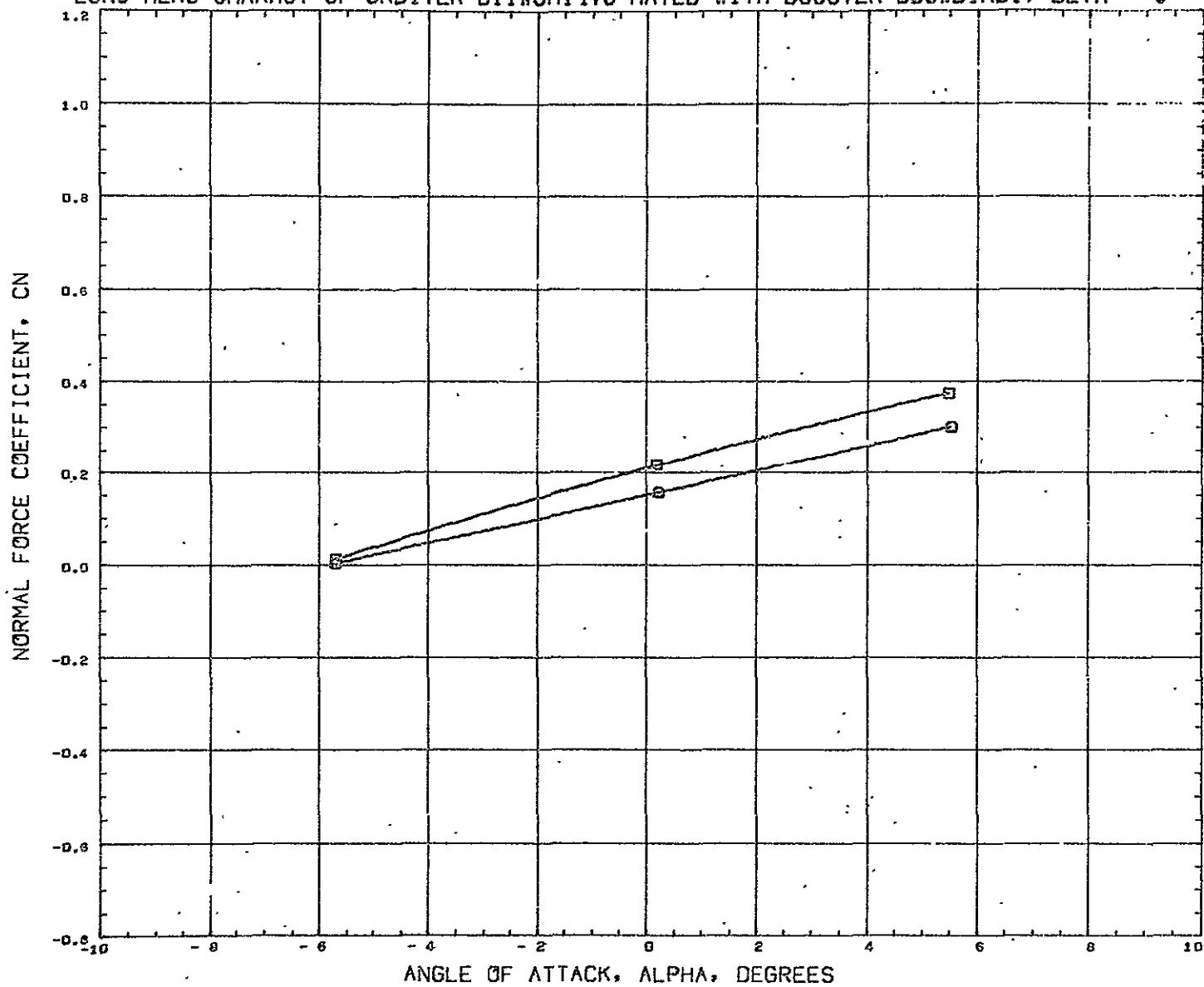
REFERENCE INFORMATION		
REFS	20.6640	SG IN
REFL	1.8540	IN
REFB	12.0000	IN
XNRP	9.3080	IN
YNRP	0.0000	IN
ZNRP	1.4600	IN
SCALE	5.0000	

DATA HIST. CODE #0

B11W6H14V5/BB3WB1HB1 MATED

(RCH105) 03 FEB 71 PAGE 193

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES		
□	13.000	BETA	0.000	NACH 4.390
□	14.000	BETB	0.000	

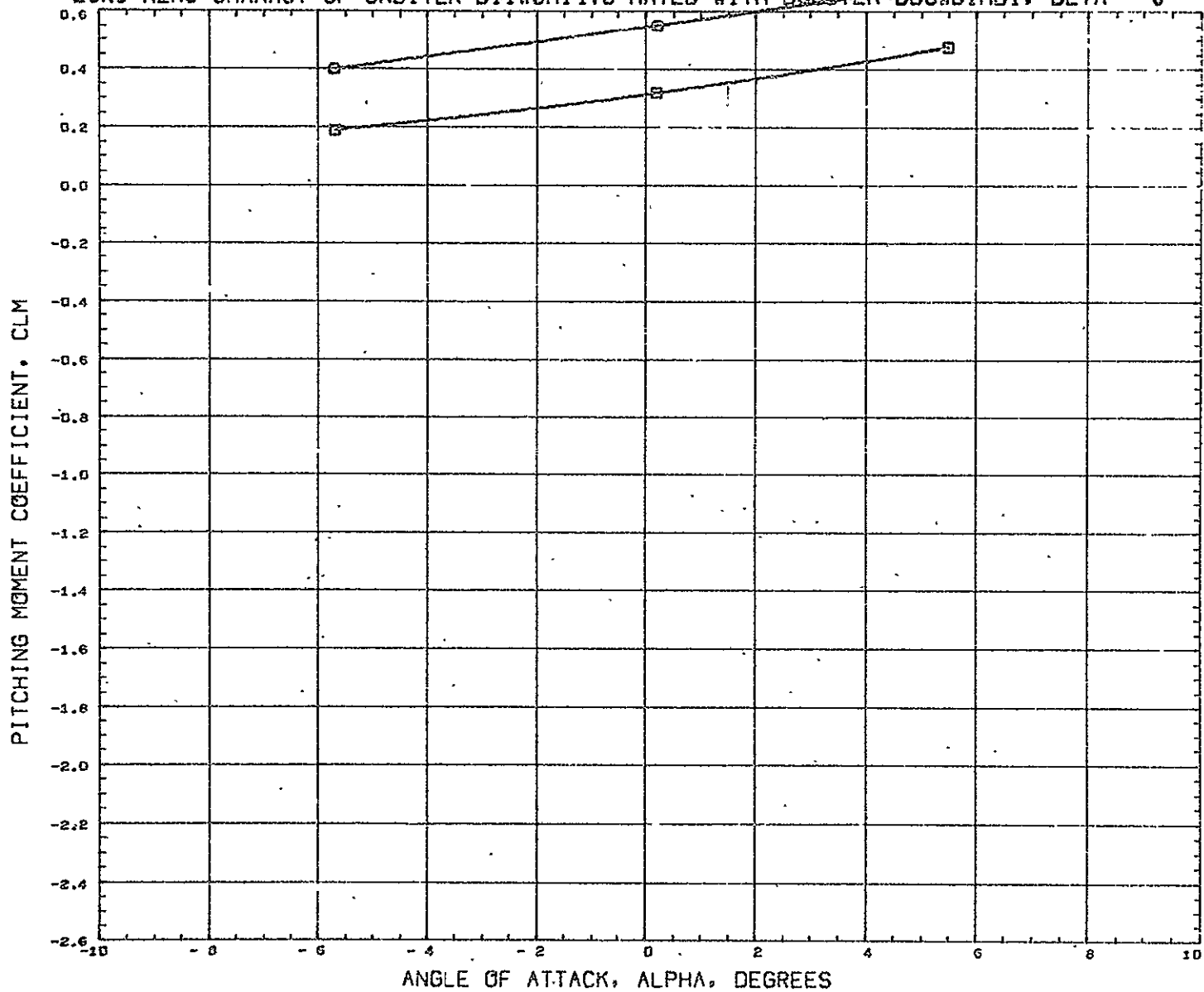
REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

DATA HIST. CODE #6

B11W6H14V5/BB3WB1HB1 MATED

(RCH105) 03 FEB 71 PAGE 194

LONG AERO CHARACT OF ORBITER B11W6H14V5 MATED WITH BOOSTER BB3WB1HB1, BETA = 0



SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	HACH
Q	13.000	BETA	0.000	4.390
□	14.000	BETB	0.000	

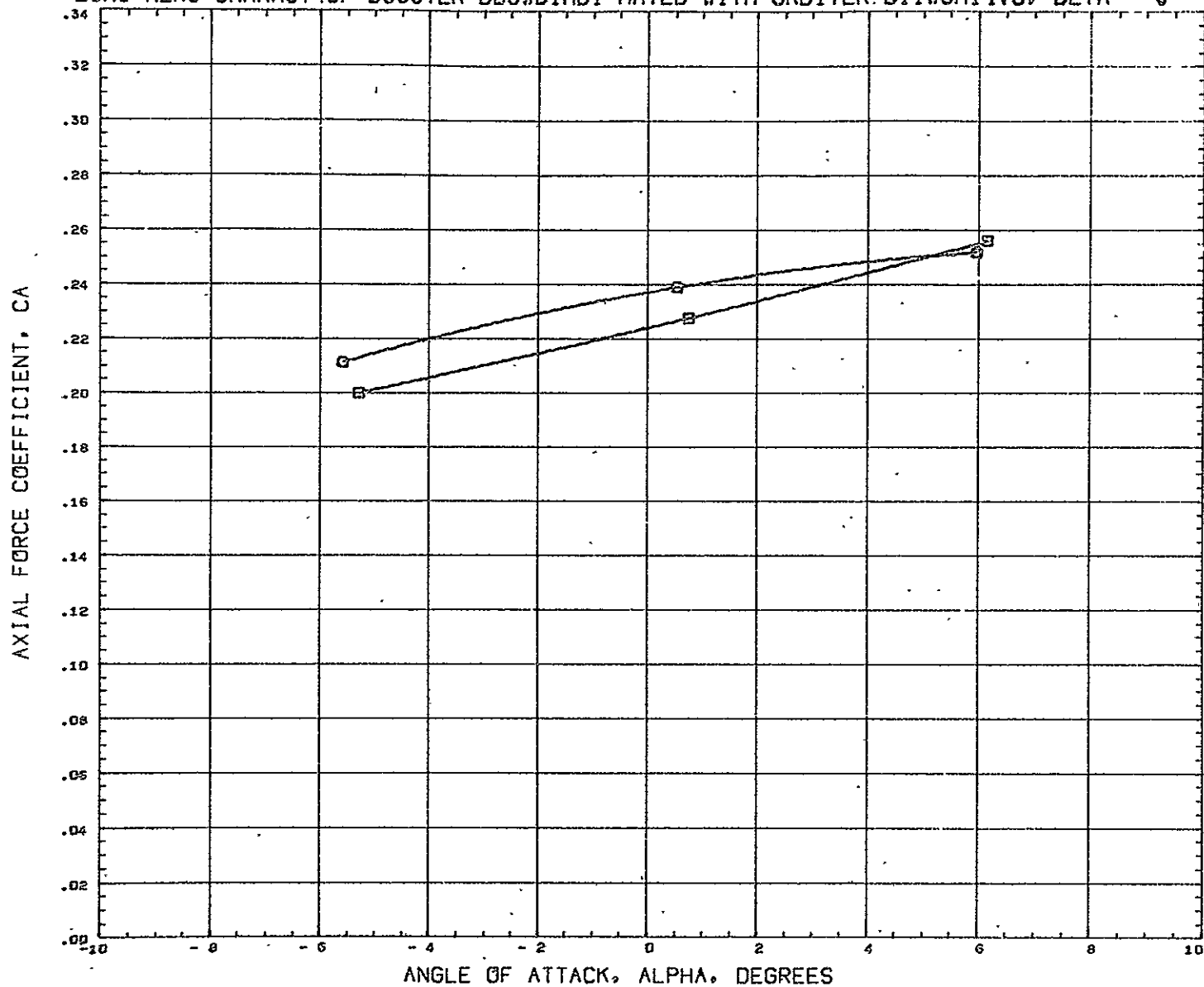
REFERENCE INFORMATION		
REFS	20.6640	50 IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

DATA HIST. CODE *6

B11W6H14V5/BB3WB1HB1 MATED

(RCH105) 03 FEB 71 PAGE 195

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5, BETA = 0



SYMBOL	SEFPOS	PARAMETRIC VALUES		
○	13.000	BETA	0.000	BETB
□	14.000	HACH	1.810	0.000

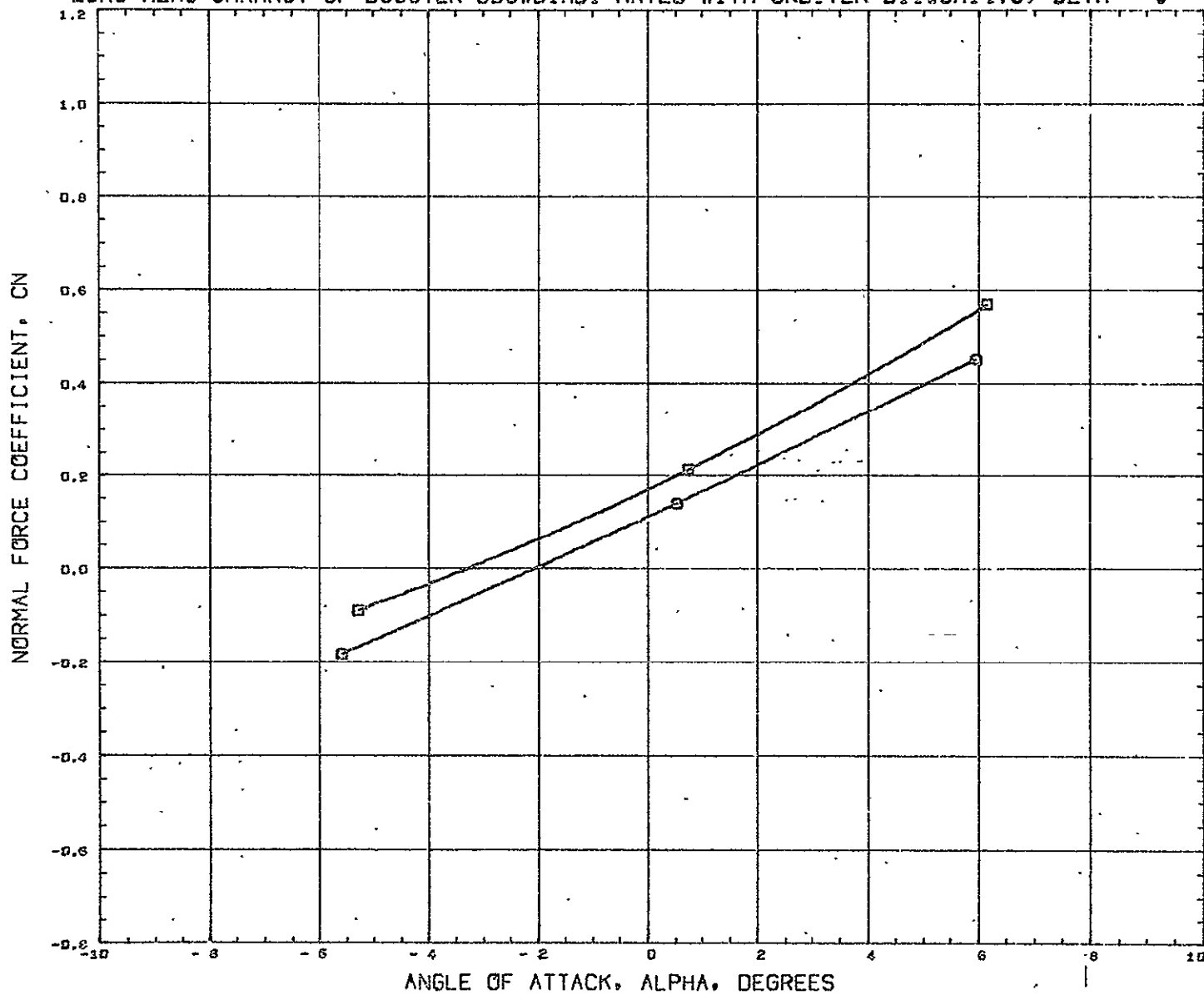
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8990	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

DATA HIST. CODE *G

BB3WB1HB1/B11W6H14V5 MATED

(RCH106) 03 FEB 71 PAGE 196

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5, BETA = 0



SYMBOL	SEPPOS	PARAMETRIC VALUES		
○	13.000	BETA	0.000	BET8 0.000
□	14.000	MACH	1.610	

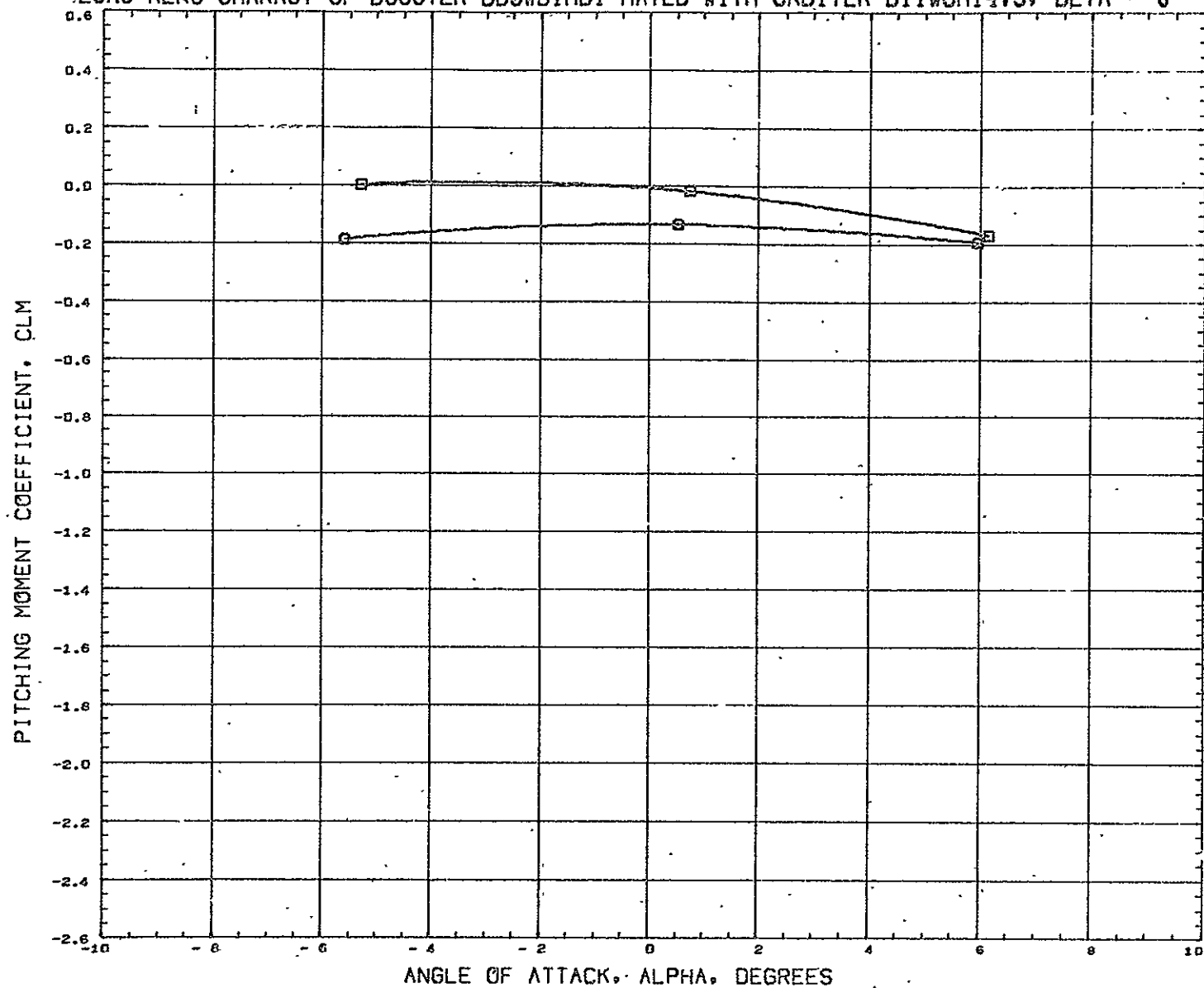
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8930	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

DATA HIST. CODE *G

BB3WB1HB1/B11W6H14V5 MATED

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LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5, BETA = 0



SYMBOL	SEFFOS	BETA	PARAMETRIC VALUES	BETB	0.000
□	13.000	BETA	0.000	BETB	0.000
○	14.000	MACH	1.810		

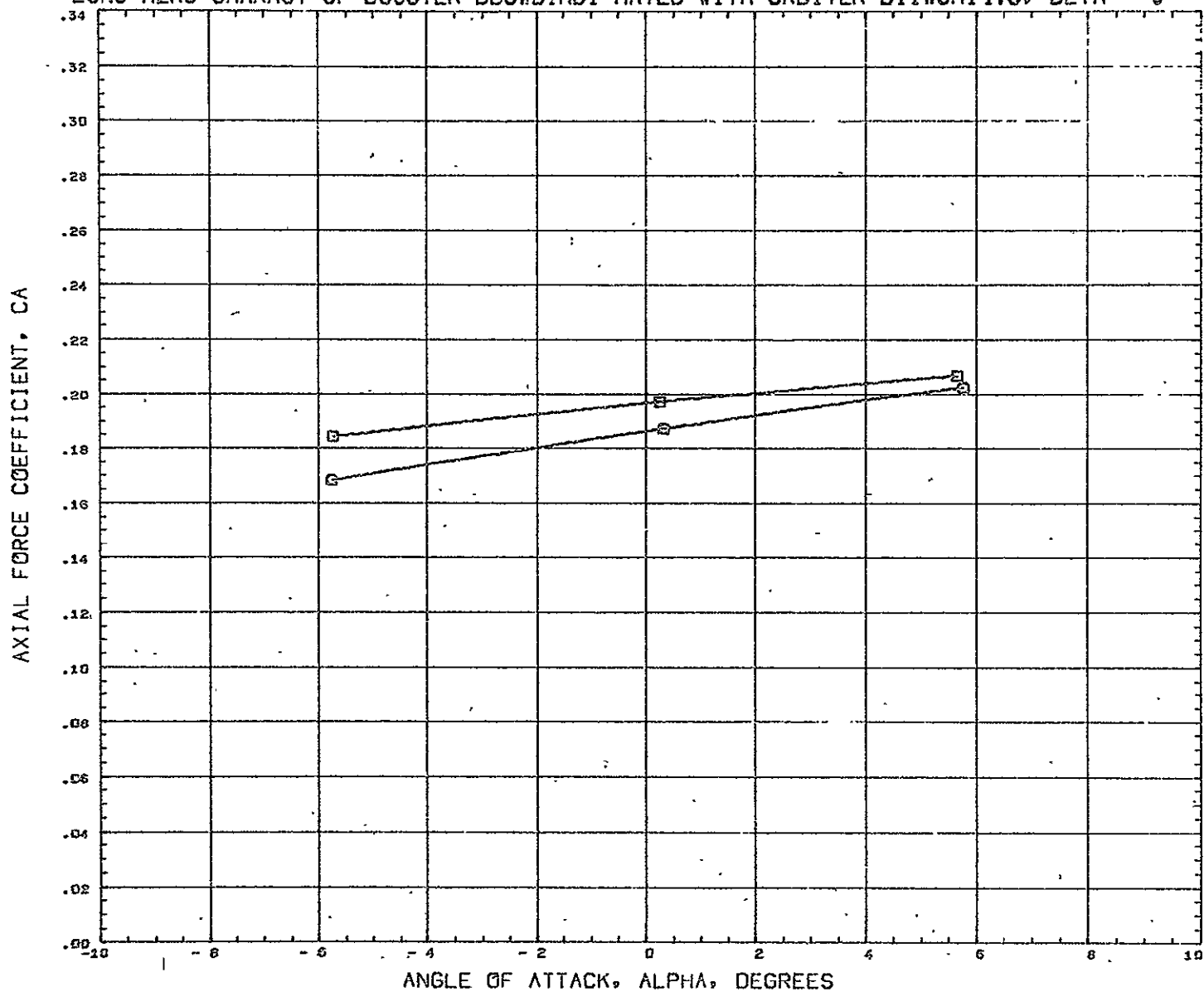
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

DATA HIST. CODE #6

BB3WB1HB1/B11W6H14V5 MATED

(RCH106) 03 FEB 71 PAGE 198

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5. BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	13.000	BETA	0.000	BETB	0.000
○	14.000	HACH	2.990		

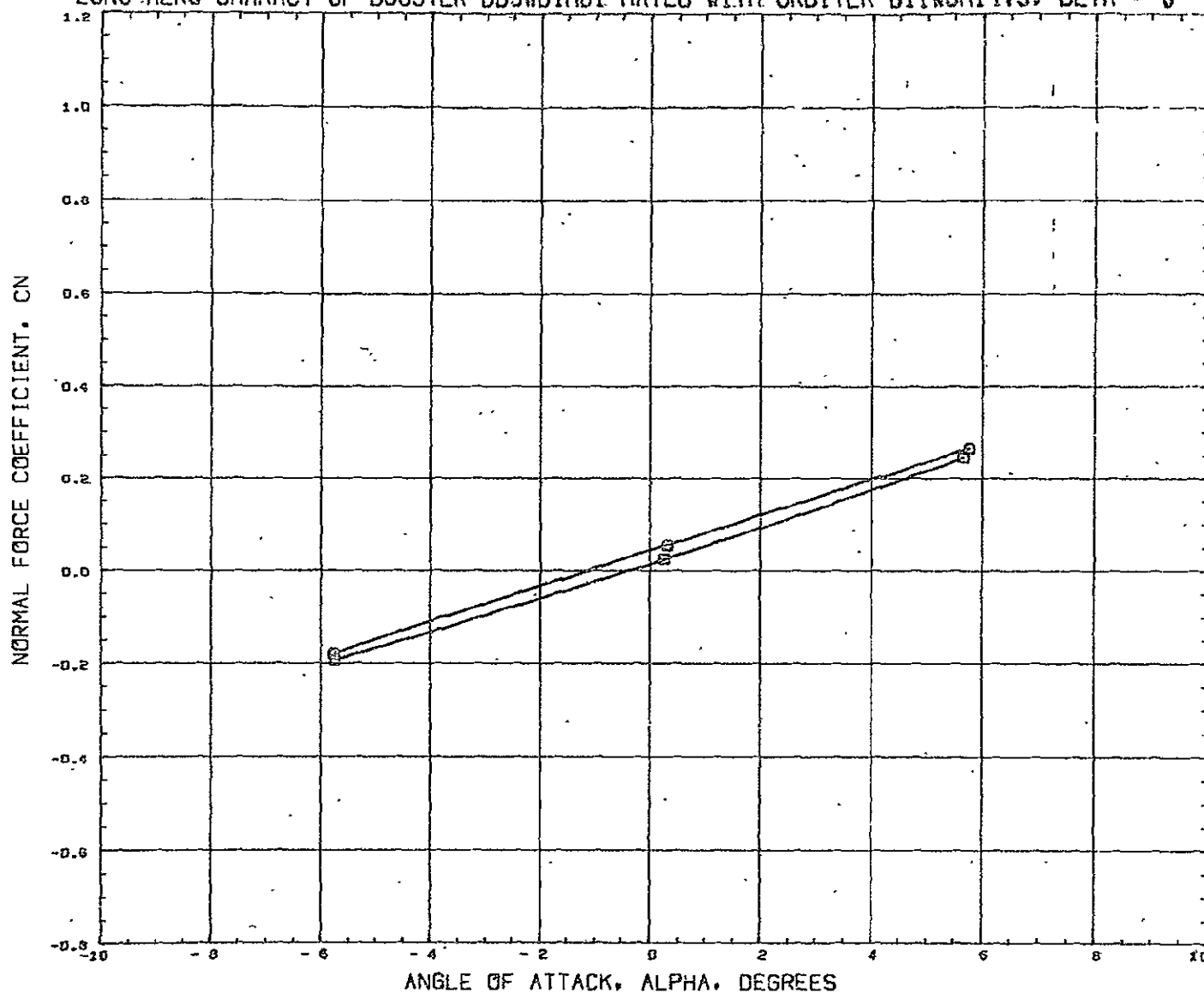
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRP	15.8990	IN
YHRP	0.0000	IN
ZHRP	2.0000	IN
SCALE	0.0088	

DATA HIST. CODE #6

BB3WB1HB1/B11W6H14V5 MATED

(RCH107) 03 FEB 71 PAGE 199

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5, BETA = 0



SYMBOL	SEPFO5	PARAMETRIC VALUES			
Q	13.000	BETA	0.000	BETB	0.000
D	14.000	MACH	2.990		

REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

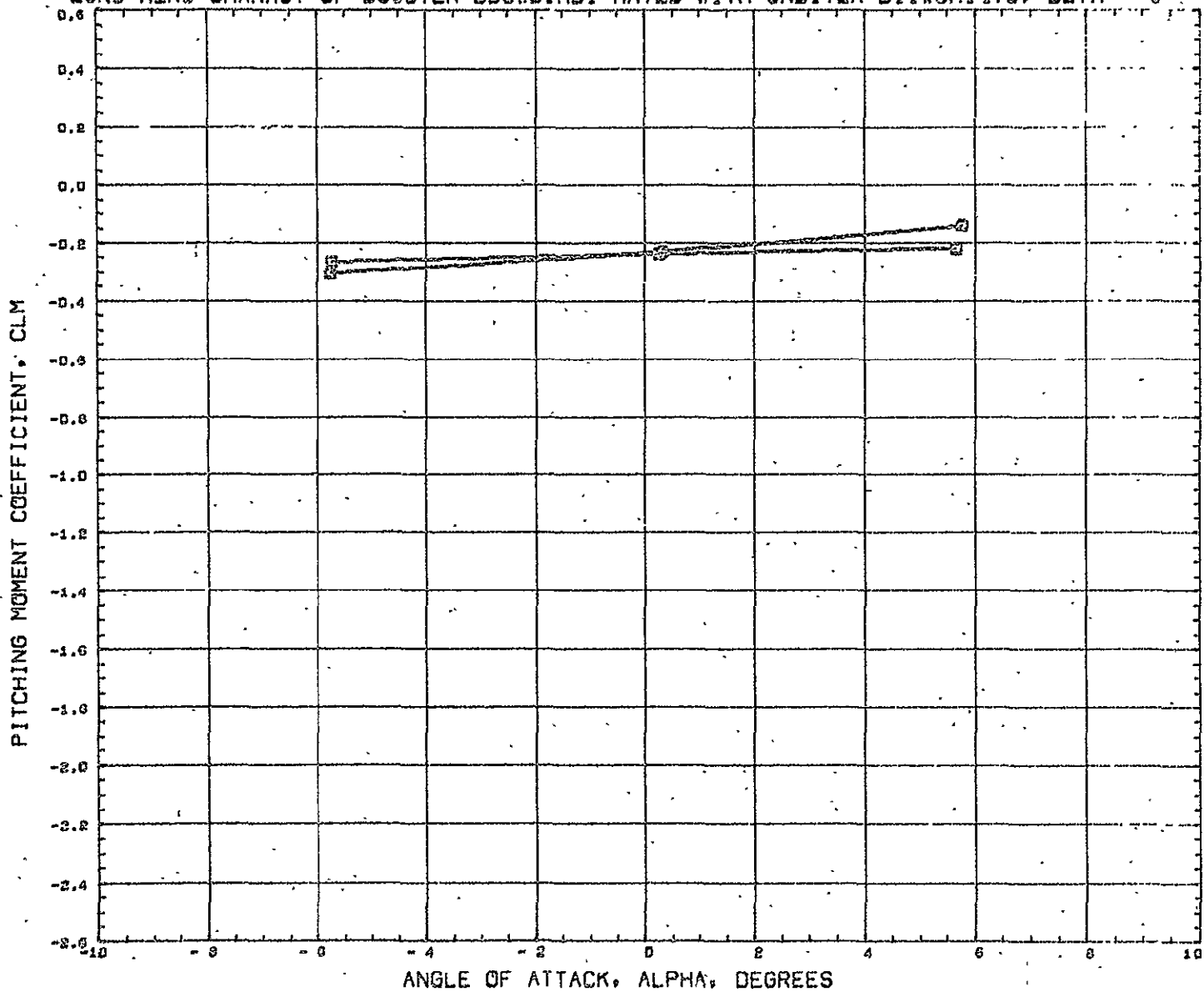
DATA HIST. CODE 46

BB3WB1HB1/B11W6H14V5 MATED

(RCH107) 03 FEB 71

PAGE 200

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5, BETA = 0



SYMBOL	SEPPQS	PARAMETRIC VALUES		
○	13.000	BETA	0.000	BETA
□	14.000	HACH	2.990	BETA
				0.000

REFERENCE INFORMATION		
REFS	54.6580	80 IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

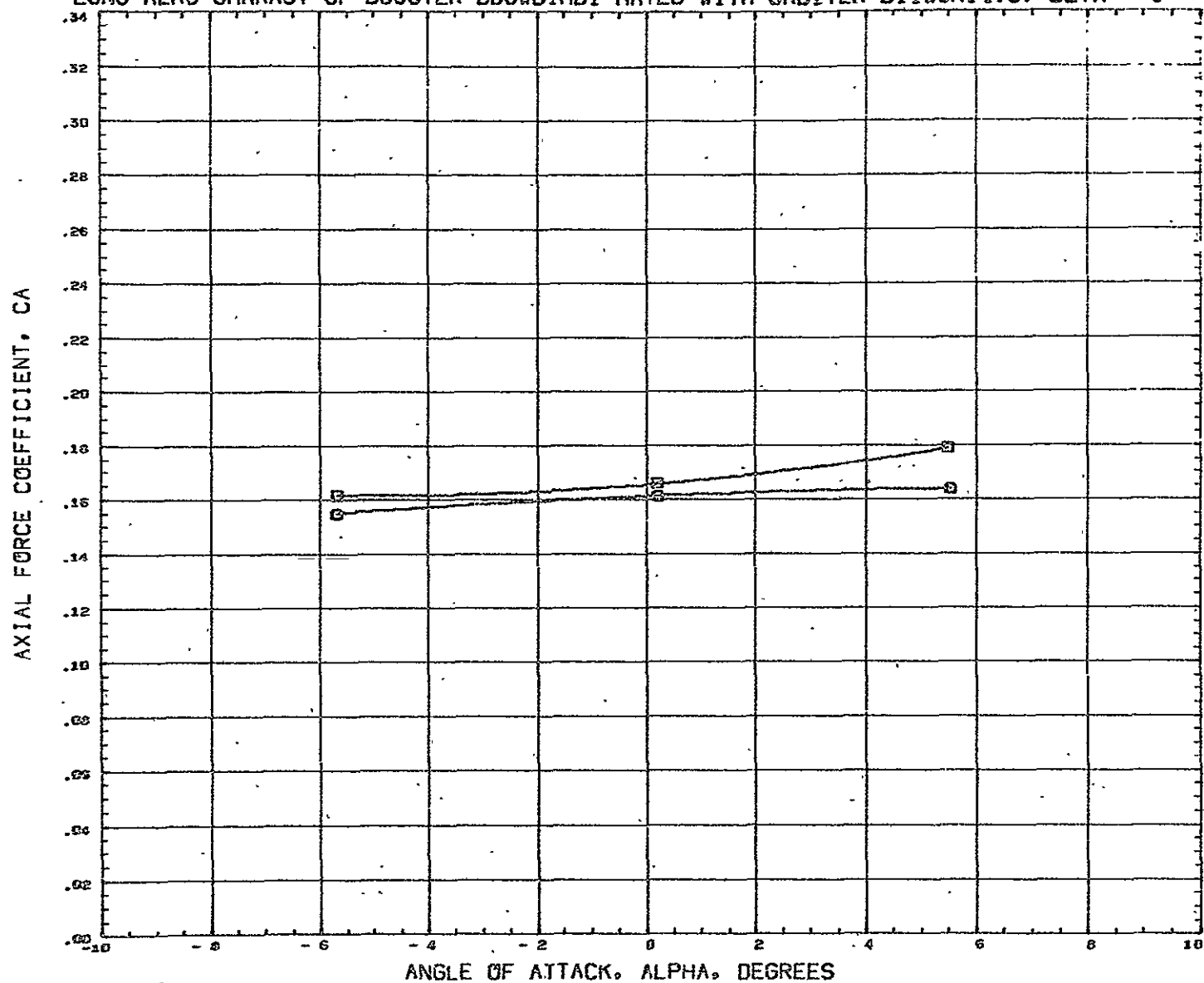
DATA HIST. CODE 46

BB3WB1HB1/B11W6H14V5.MATED

(RCH107) 03 FEB 71

PAGE 201

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5, BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	13.000	BETA	0.000	BETB	0.000
□	14.000	MACH	4.390		

REFERENCE INFORMATION		
REFS	54.6580	50 IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8990	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

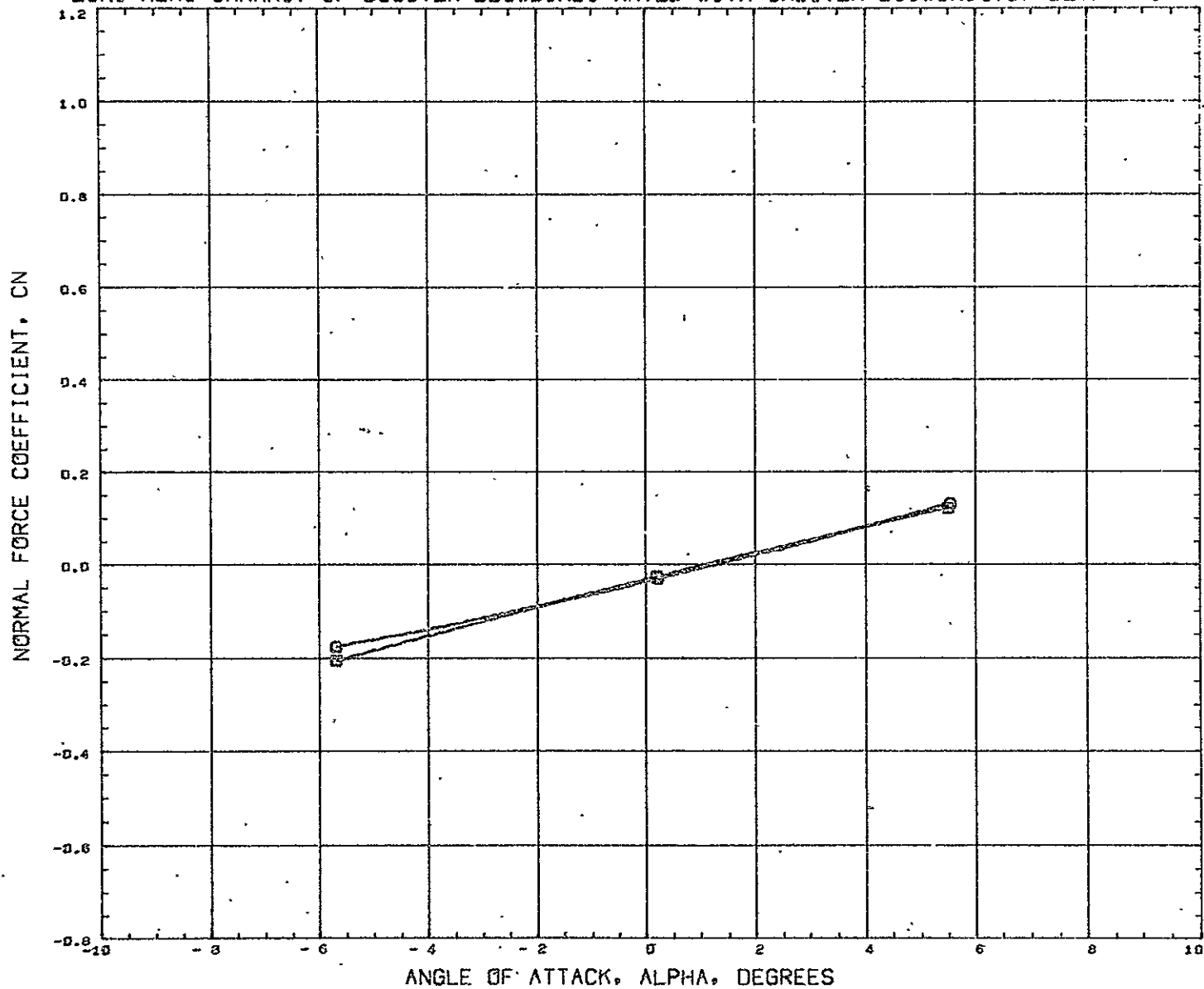
DATA HIST. CODE *0

BB3WB1HB1/B11W6H14V5 MATED

(RCH108) 03 FEB 71

PAGE 202

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5, BETA = 0



SYMBOL	SEFPOS	PARAMETRIC VALUES			
Q	13.000	BETA	0.000	BETB	0.000
□	14.000	HACH	4.390		

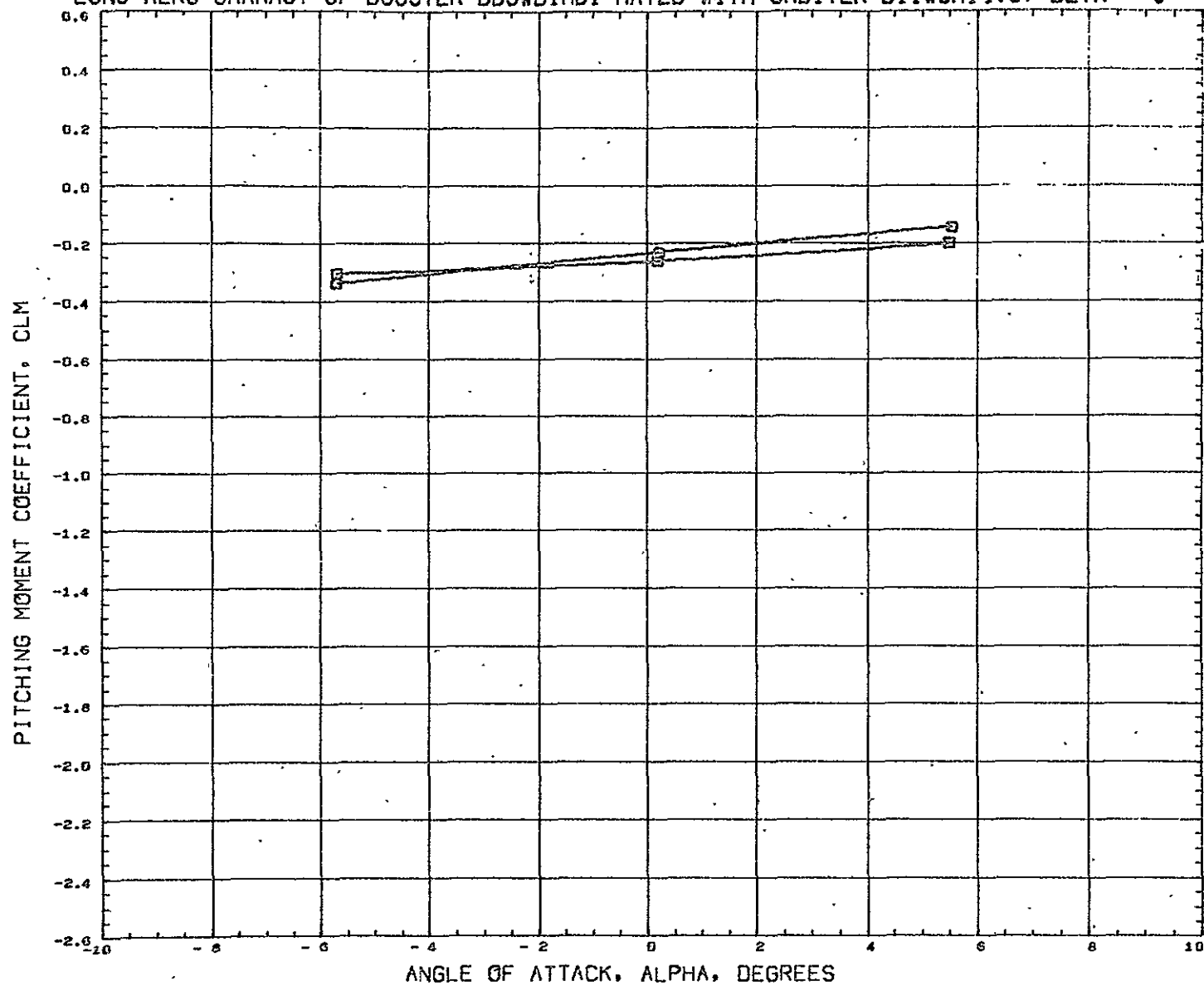
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

DATA HIST. CODE *G

BB3WB1HB1/B11W6H14V5 MATED

(RCH108) 03 FEB 71 PAGE 203

LONG AERO CHARACT OF BOOSTER BB3WB1HB1 MATED WITH ORBITER B11W6H14V5. BETA = 0



SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	13.000	BETA	0.000	BETB	0.000
□	14.000	MACH	4.390		

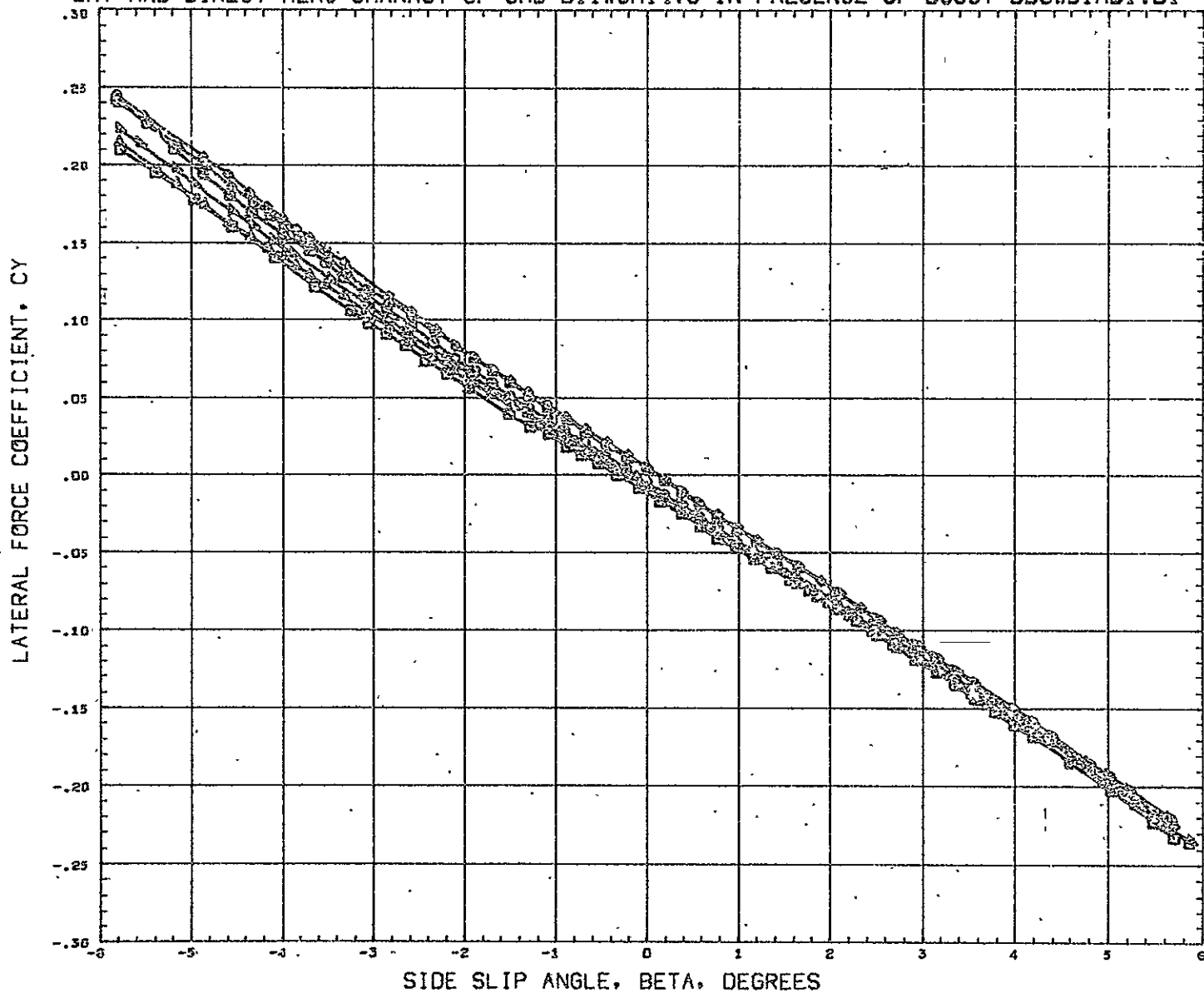
REFERENCE INFORMATION		
REFS	54.6580	50 IN
REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

DATA HIST. CODE *6

BB3WB1HB1/B11W6H14V5 MATED

(RCH108) 03 FEB 71 PAGE 204

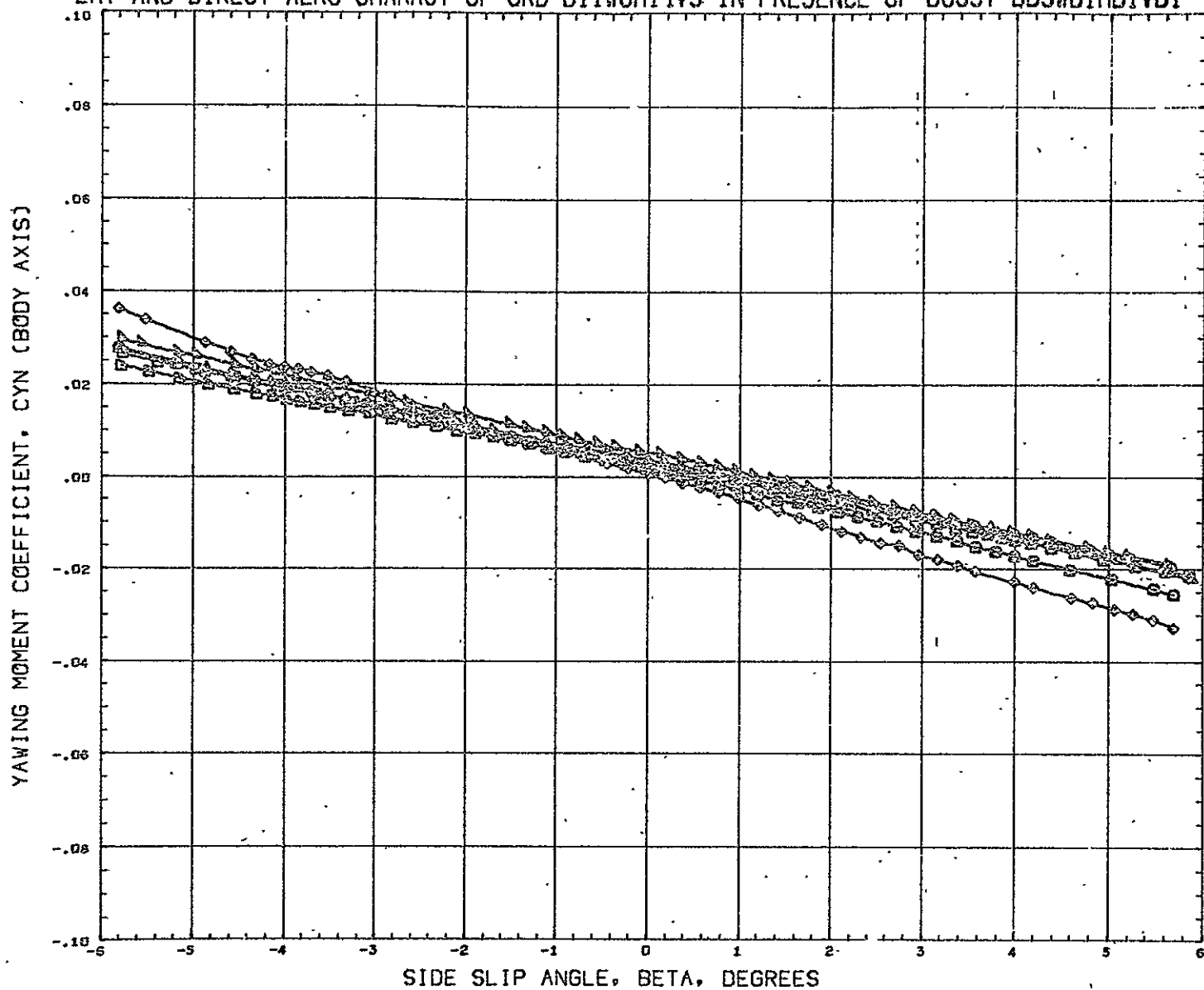
LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



SYMBOL	SEFFOS	PARAMETRIC VALUES			
○	3.000	ALPHA	0.000	MACH	1.810
□	4.000	ALPB	0.000	BETB	0.000
◇	6.000				
△	8.000				
▽	9.000				
◻	12.000	REFERENCE FILE	.0000		

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XHRP	9.3880	IN
YHRP	0.0000	IN
ZHRP	1.4600	IN
SCALE	0.0088	

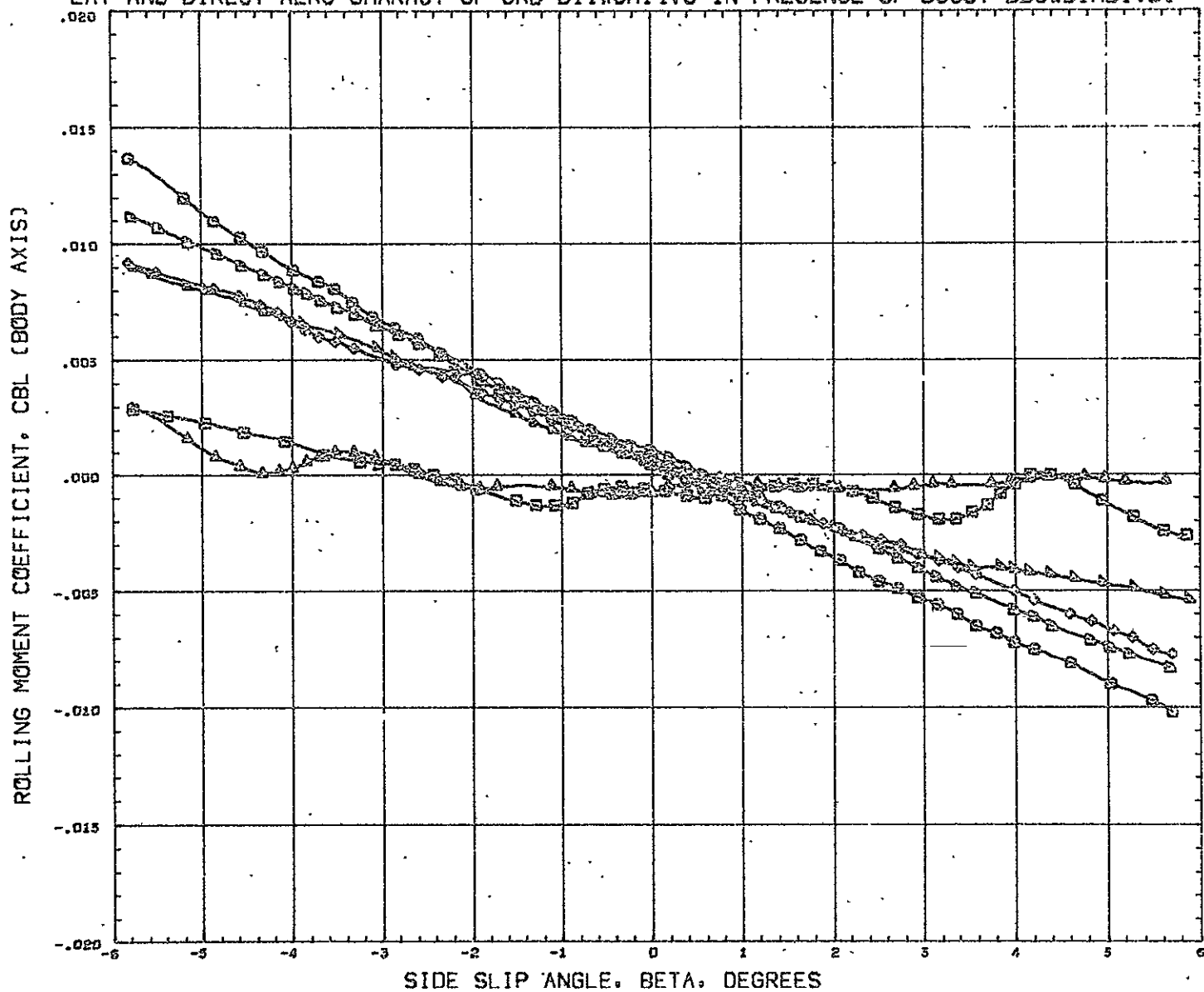
LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



SYMBOL	SEFFOS	PARAMETRIC VALUES
□	3.000	ALPHA 0.000 MACH 1.810
□	4.000	ALPB 0.000 BETB 0.000
◇	6.000	
△	8.000	
▽	9.000	
D	12.000	REFERENCE FILE .0000

REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.6540	IN
REFB	12.0000	IN
XMRP	9.3880	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

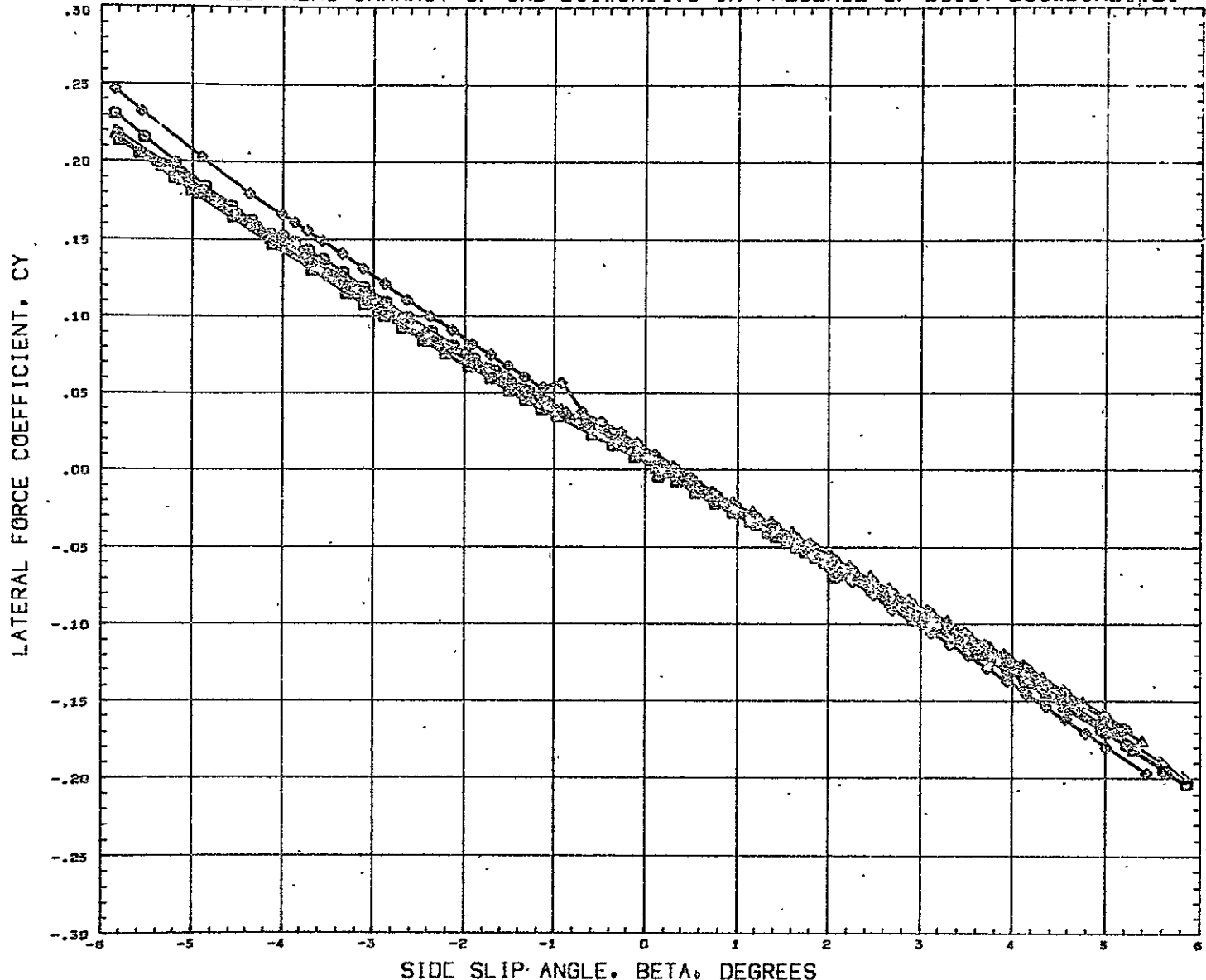
LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



SYMBOL	SEFPOS	PARAMETRIC VALUES	REFERENCE INFORMATION
○	3.000	ALPHA 0.000 MACH 1.010	REFS 20.6640 SQ IN
□	4.000	ALPHA 0.000 BETA 0.000	REFL 1.8540 IN
◇	6.000		REFB 12.0000 IN
△	8.000		XHRP 9.3880 IN
▽	9.000		YHRP 0.0000 IN
◇	12.000	REFERENCE FILE .0000	ZHRP 1.4600 IN
			SCALE 0.0008

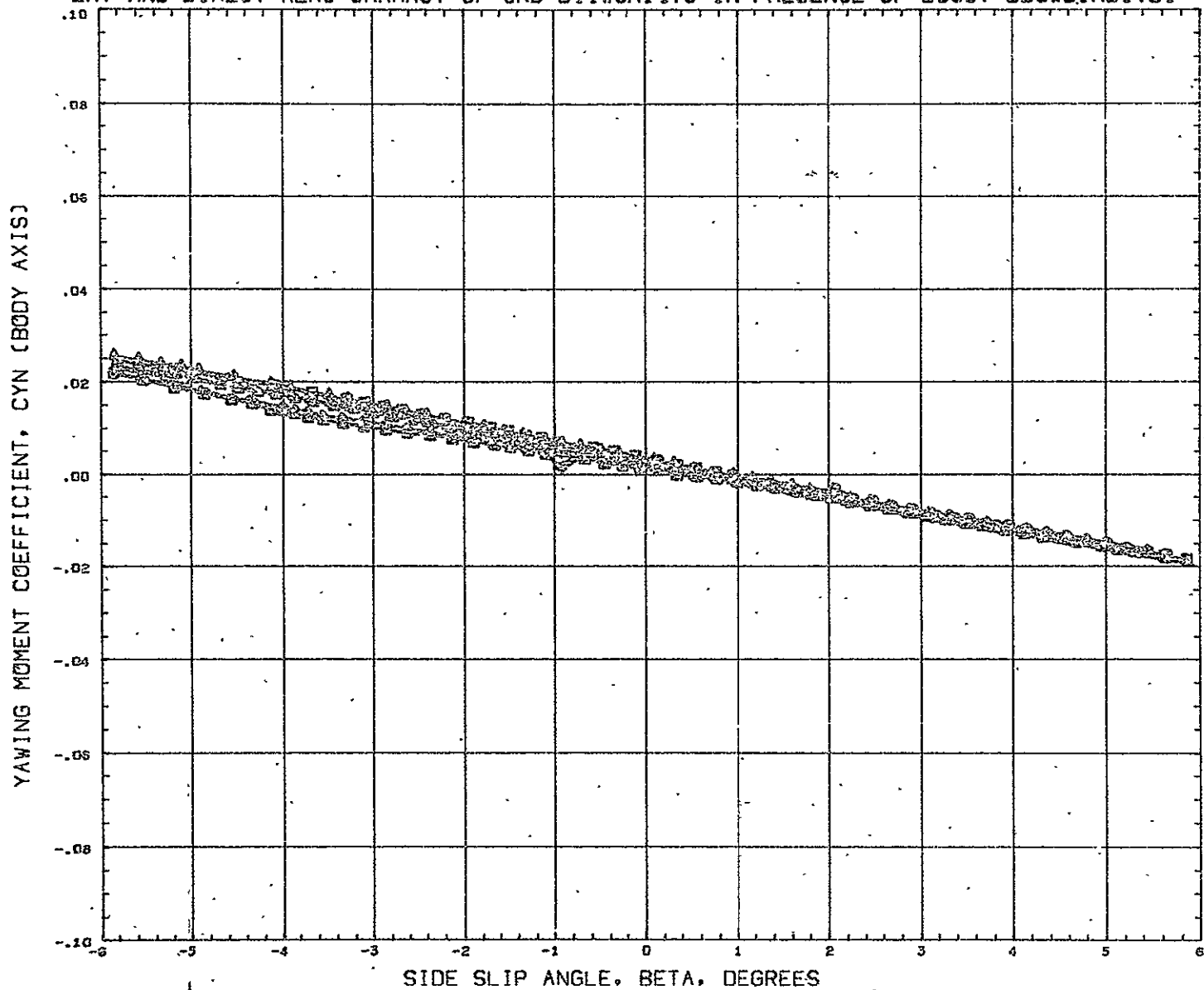
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LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



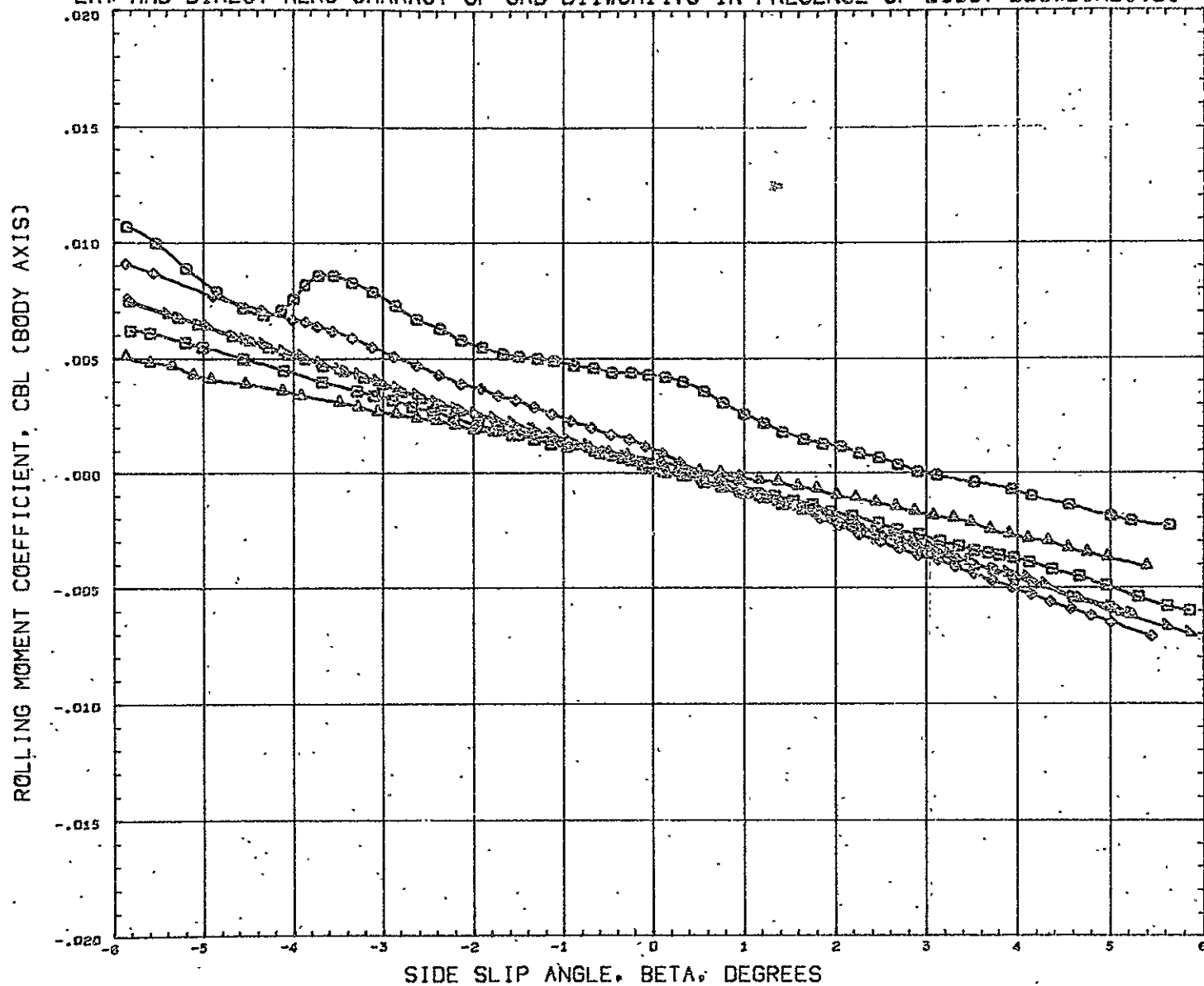
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	3.000	ALPHA	0.000	HACH	2.990	REFS	20.6640	SQ IN
◊	4.000	ALPB	0.000	BETB	0.000	REFL	1.8540	IN
◈	6.000					REFB	12.0000	IN
△	8.000					XMRP	9.3880	IN
▽	9.000					YMRP	0.0000	IN
◇	12.000	REFERENCE FILE			.0000	ZMRP	1.4600	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



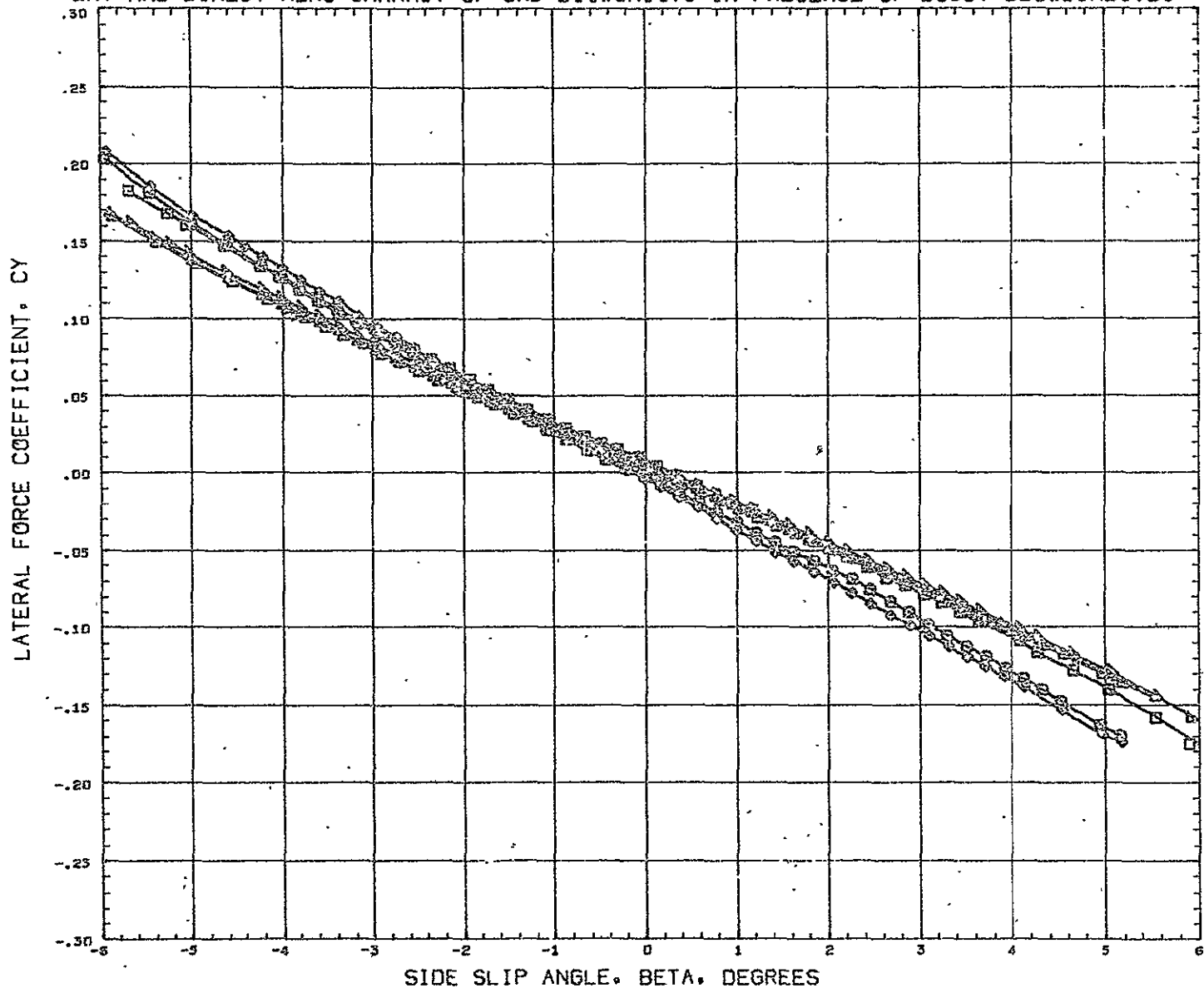
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	3.000	ALPHA	0.000	MACH	2.990	REFS	20.6640	SQ IN
□	4.000	ALFB	0.000	BETA	0.000	REFL	1.8540	IN
◇	6.000					REFB	12.0000	IN
△	8.000					XMRP	9.3880	IN
▽	9.000					YMRP	0.0000	IN
◇	12.000	REFERENCE FILE			.0000	ZMRP	1.4600	IN
						SCALE	0.0088	

LAT. AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



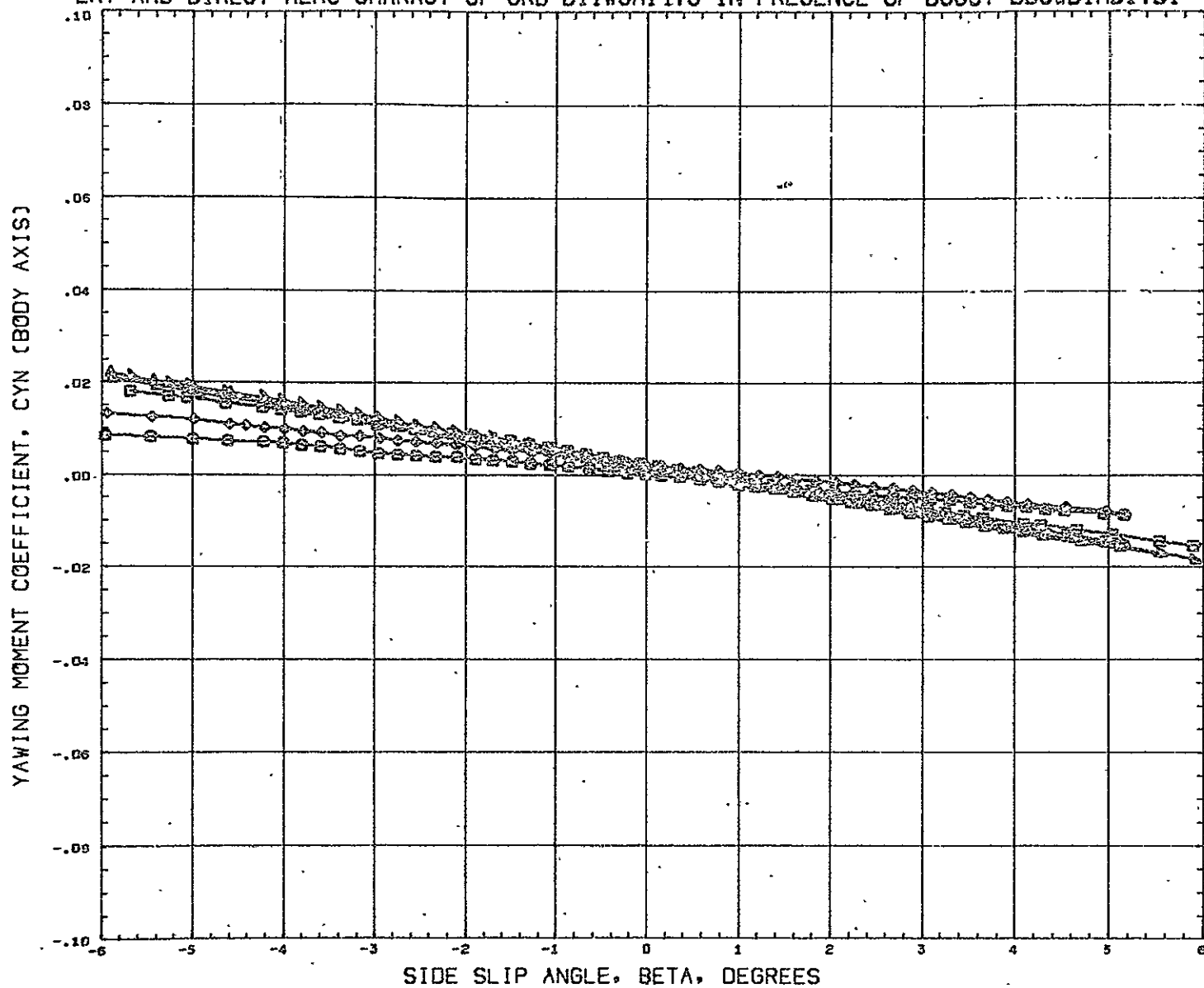
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	3.000	ALPHA	0.000	MACH	2.990	REFS	20.6640	'SQ IN
◻	4.000	ALPB	0.000	BETB	0.000	REFL	1.8540	IN
◇	6.000					REFB	12.0000	IN
△	8.000					XHRP	9.3880	IN
▲	9.000					YHRP	0.0000	IN
◊	12.000	REFERENCE FILE	.0000			ZHRP	1.4600	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



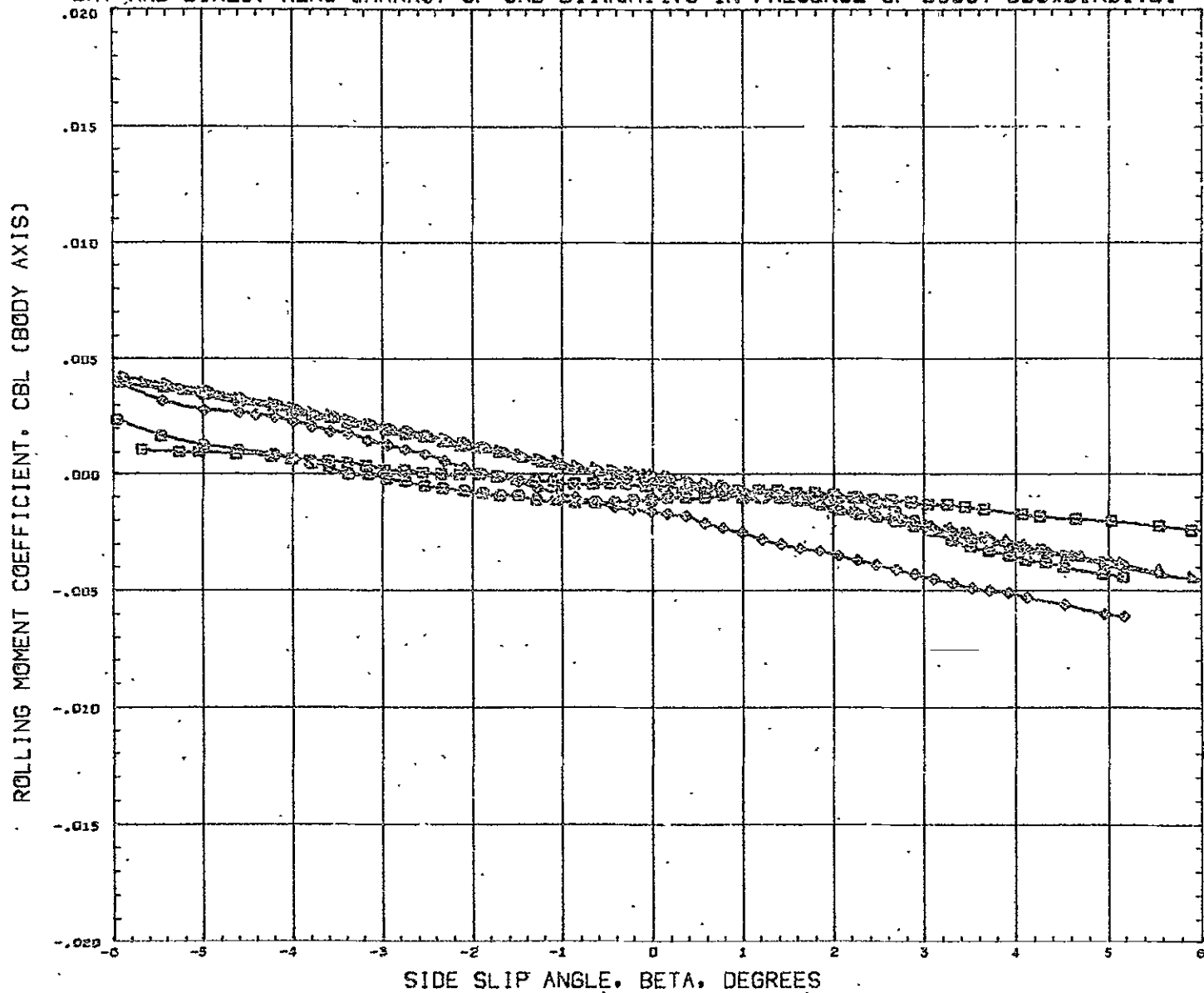
SYMBOL	SEFFOS	PARAMETRIC VALUES	REFERENCE INFORMATION
□	3.000	ALPHA 0.000 MACH 4.390	REFS 20.6640 SQ IN
◇	4.000	ALPB 0.000 BETB 0.000	REFL 1.8540 IN
◇	6.000		REFB 12.0000 IN
△	8.000		XMRP 9.3880 IN
▽	9.000		YHRF 0.0000 IN
◇	12.000	REFERENCE FILE .0000	ZHRP 1.4600 IN
			SCALE 0.0088

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



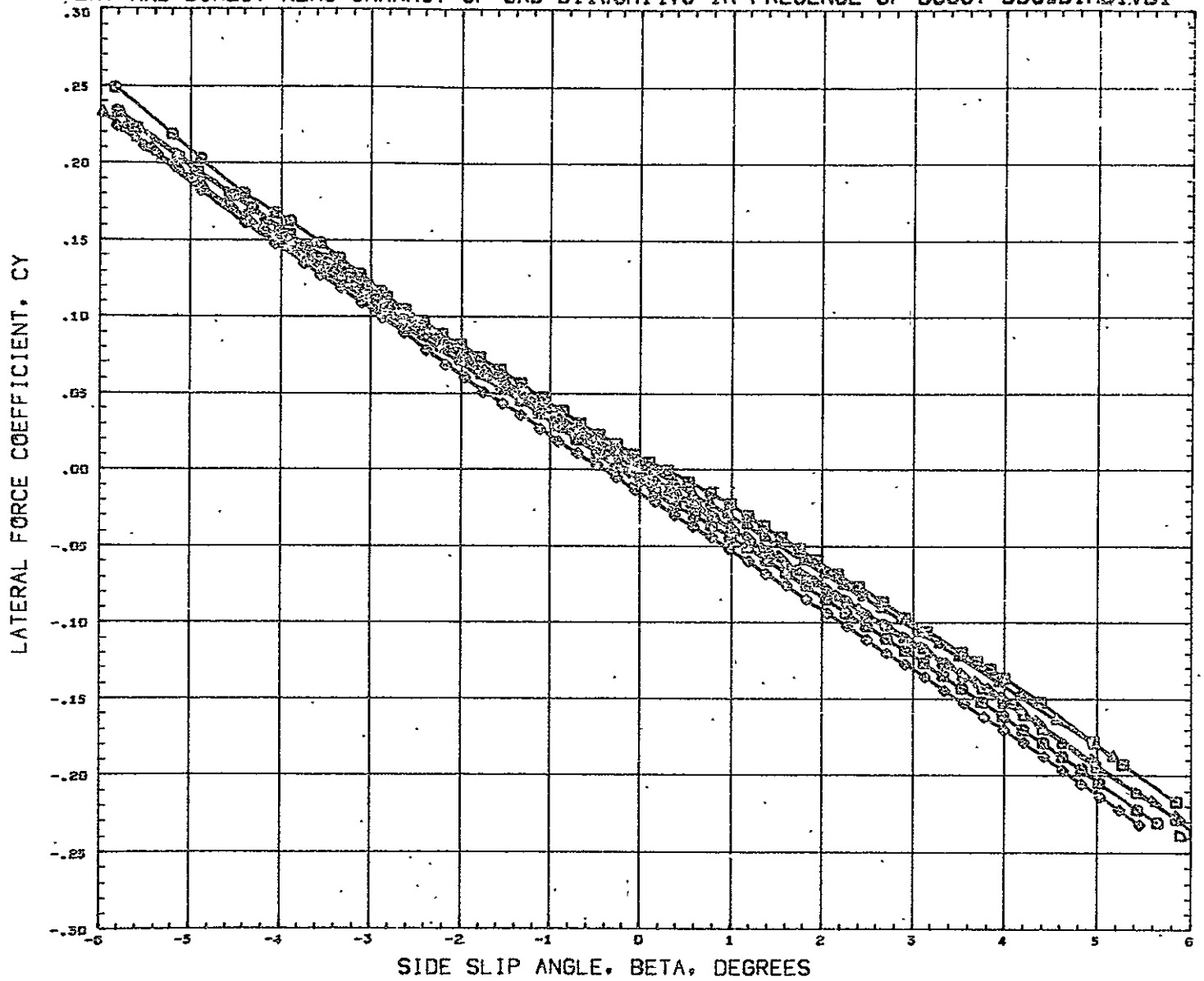
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	3.000	ALPHA	0.000	MACH	4.390	REFS	20.6640	SQ IN
□	4.000	ALPB	0.000	BETB	0.000	REFL	1.8540	IN
◇	6.000					REFB	12.0000	IN
△	8.000					XNRP	9.3880	IN
▽	9.000					YNRP	0.0000	IN
◇	12.000	REFERENCE FILE	.0000			ZMRP	1.4600	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



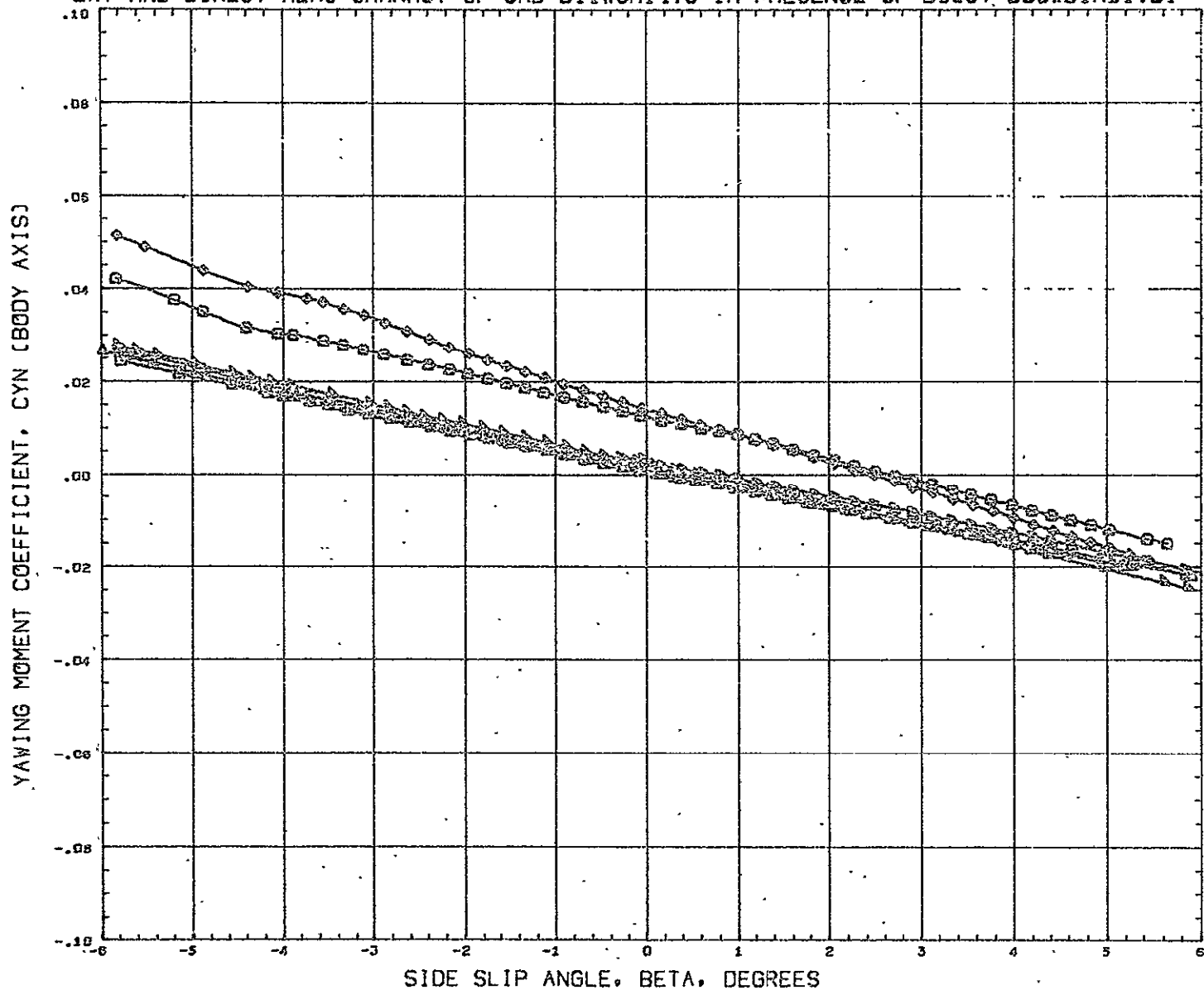
SYMBOL	SEPPOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	3.000	ALPHA	0.000	MACH	4.390	REFS	20.6640	SQ IN
□	4.000	ALFB	0.000	BETB	0.000	REFL	1.8540	IN
◇	6.000					REFB	12.0000	IN
△	8.000					XNRF	9.3880	IN
▽	9.000					YNRF	0.0000	IN
◇	12.000	REFERENCE FILE	.0000			ZNRF	1.4600	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



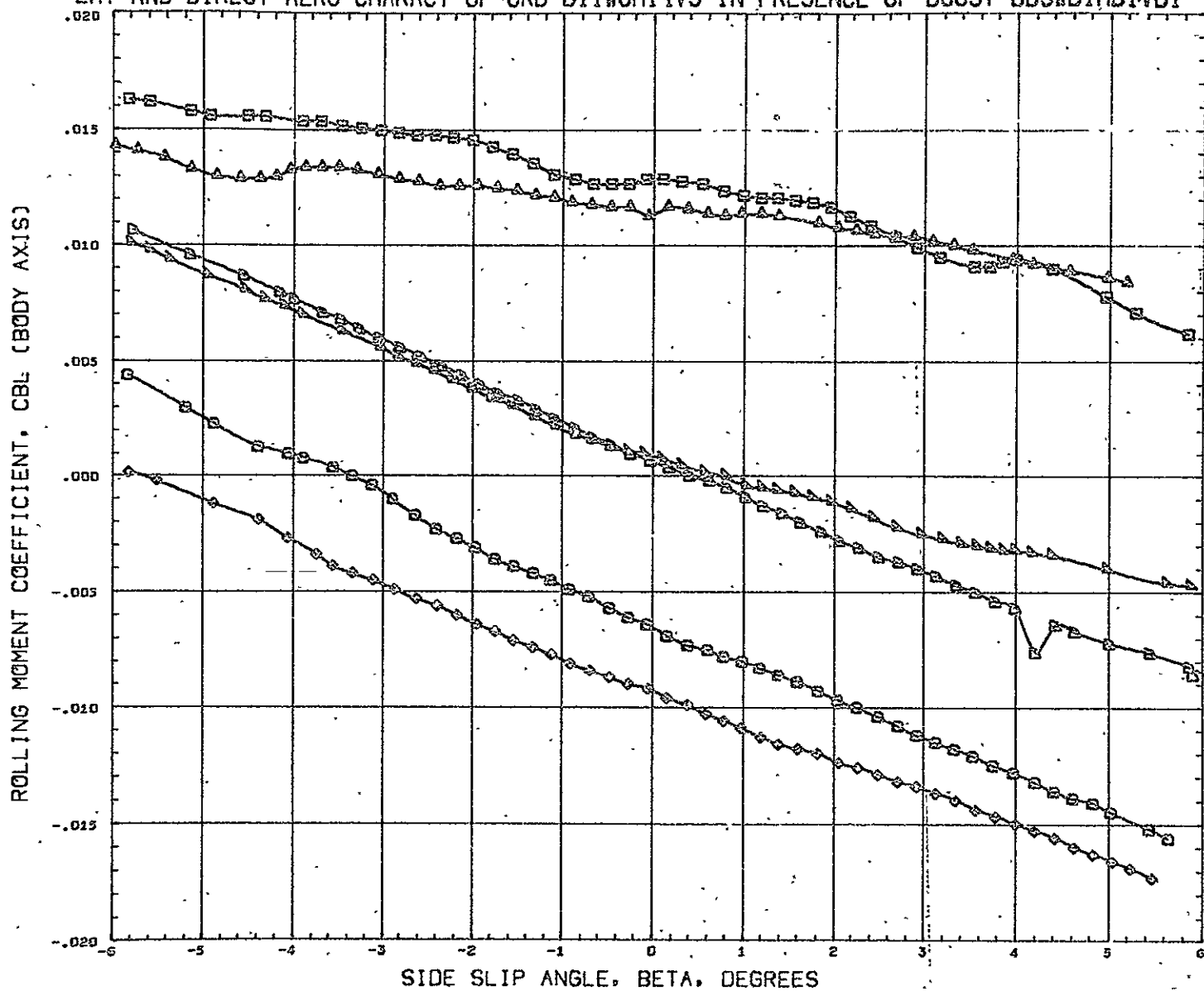
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	3.000	ALPHA	0.000	MACH	1.810	REFS	20.6640	SQ IN
□	4.000	ALPB	0.000	BETB	5.000	REFL	1.8540	IN
◇	6.000					REFB	12.0000	IN
△	8.000					XMRP	9.3880	IN
▽	9.000					YMRP	0.0000	IN
▷	12.000	REFERENCE FILE	.0000			ZMRP	1.4600	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



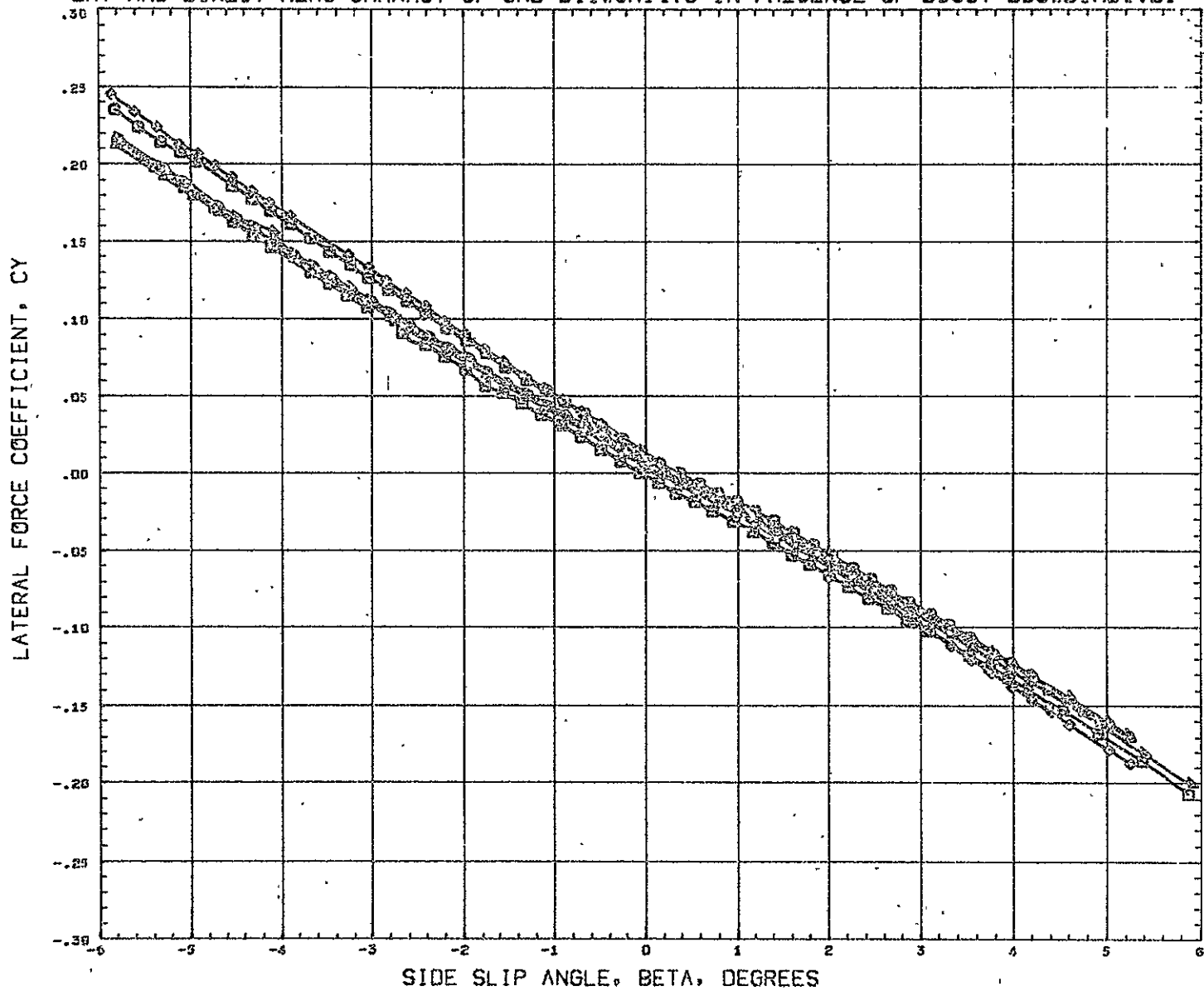
SYMBOL	SEFFOS	PARAMETRIC VALUES	REFERENCE INFORMATION
○	3.000	ALPHA 0.000 MACH 1.810	REFS 20.6640 SQ IN
□	4.000	ALPB 0.000 BETB 5.000	REFL 1.8540 IN
◇	6.000		REFB 12.0000 IN
△	8.000		XHRP 9.3880 IN
▽	9.000		YHRP 0.0000 IN
◊	12.000	REFERENCE FILE .0000	ZHRP 1.4600 IN
			SCALE 0.0088

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



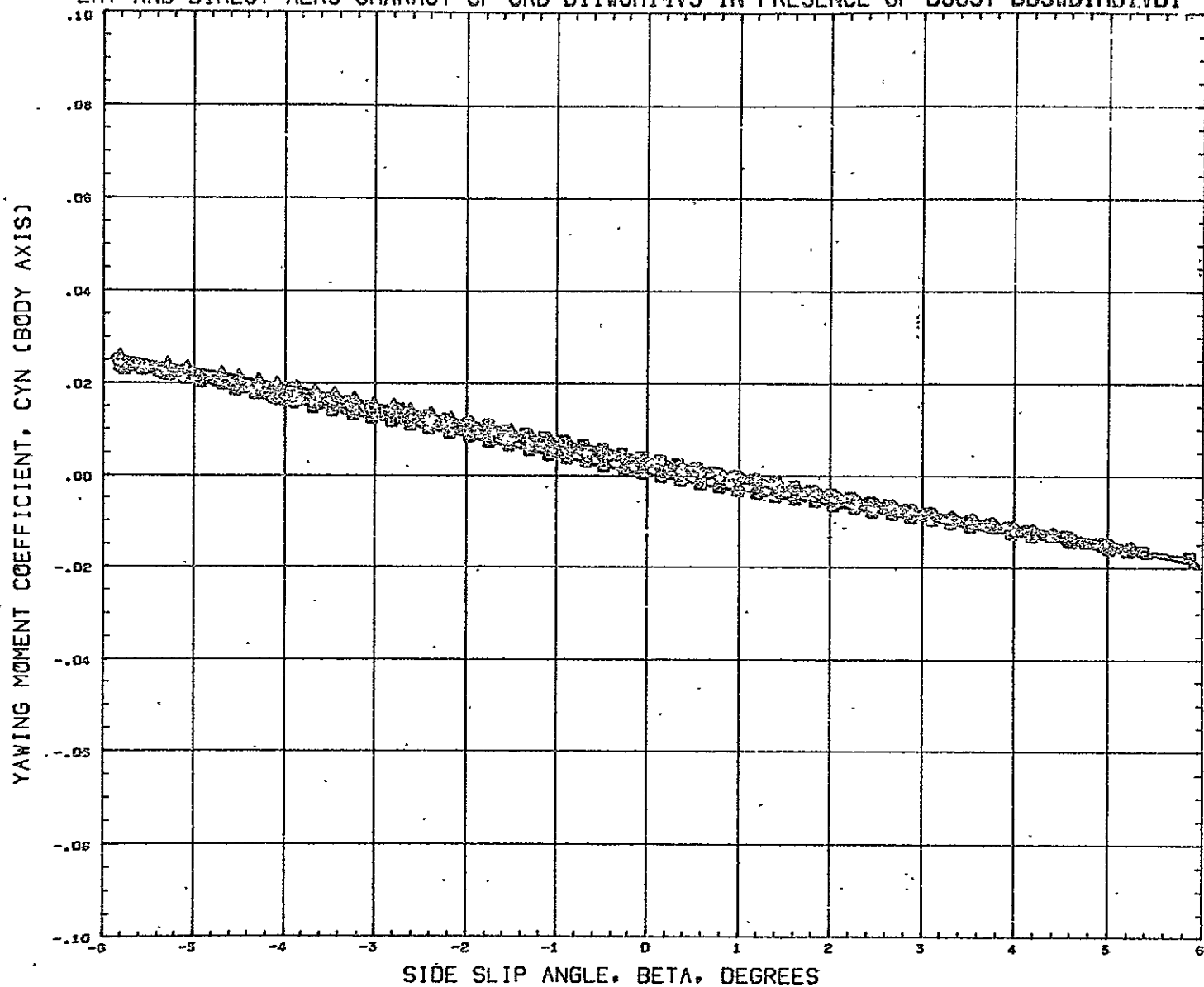
SYMBOL	SEPP05	PARAMETRIC VALUES	REFERENCE INFORMATION
□	3.000	ALPHA 0.000 MACH 1.810	REFS 20.6640 SQ IN
◇	4.000	ALFB 0.000 BETB 5.000	REFL 1.8540 IN
△	6.000		REFS 12.0000 IN
▽	8.000		XMRP 9.3880 IN
+	9.000		YMRP 0.0000 IN
×	12.000	REFERENCE FILE .0000	ZMRP 1.4600 IN
			SCALE 0.0088

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



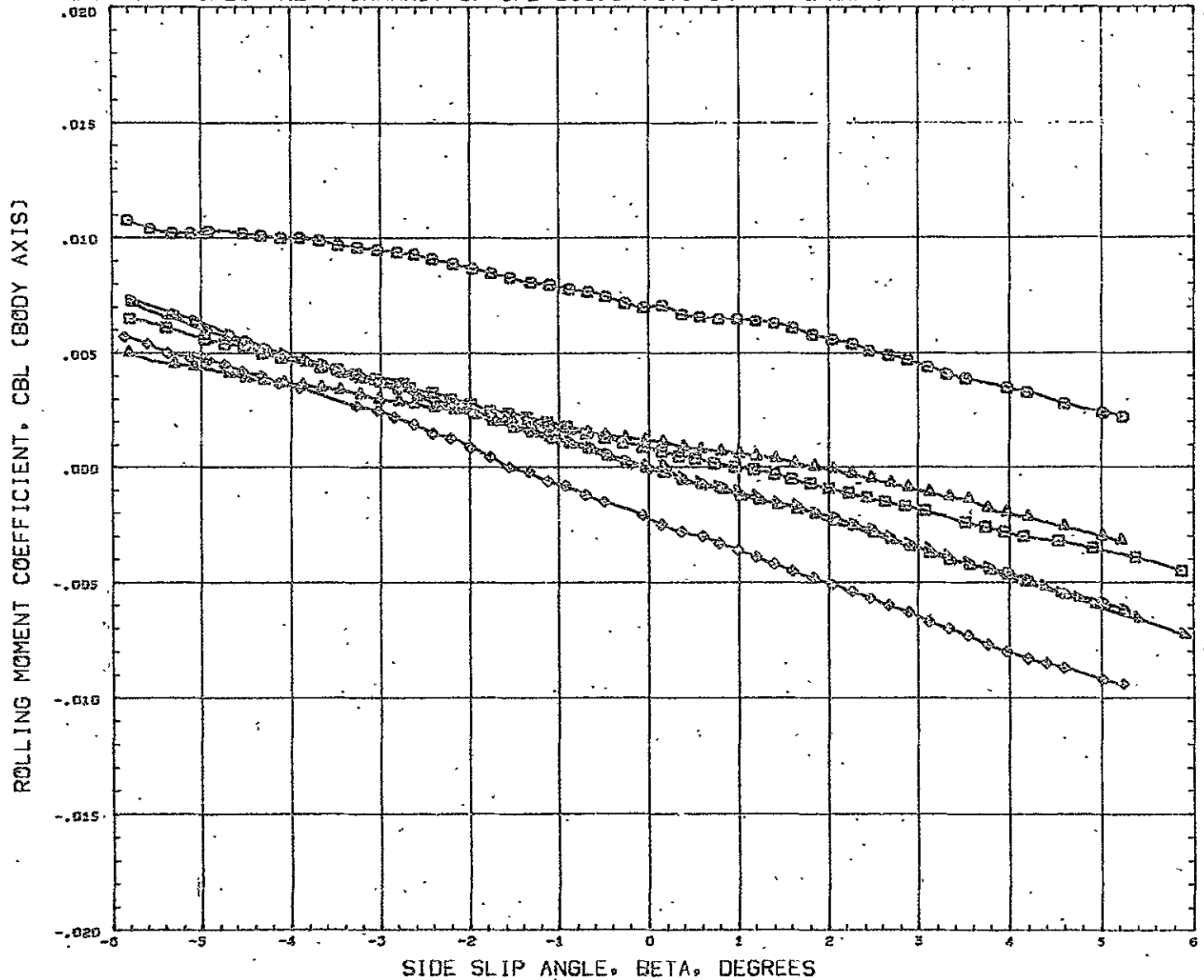
SYMBOL	SEPPFOS	PARAMETRIC VALUES	REFERENCE INFORMATION
Q	3.000	ALPHA 0.000 MACH 2.990	REFS 20.6640 SQ IN
□	4.000	ALPB 0.000 BETB 5.000	REFL 1.8540 IN
◇	6.000		REFB 12.0000 IN
△	8.000		XMRP 9.3880 IN
▽	9.000		YMRP 0.0000 IN
D	12.000	REFERENCE FILE .0000	ZMRP 1.4600 IN
			SCALE 0.8088

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	3.000	ALPHA	0.000	NACH	2.990	REFS	20.6640	SQ IN
□	4.000	ALPB	0.000	BETB	5.000	REFL	1.8540	IN
□	6.000					REFB	12.0000	IN
△	8.000					XHRF	9.3880	IN
△	9.000					YHRF	0.0000	IN
△	12.000	REFERENCE FILE	.0000			ZHRF	1.4600	IN
						SCALE	0.0088	

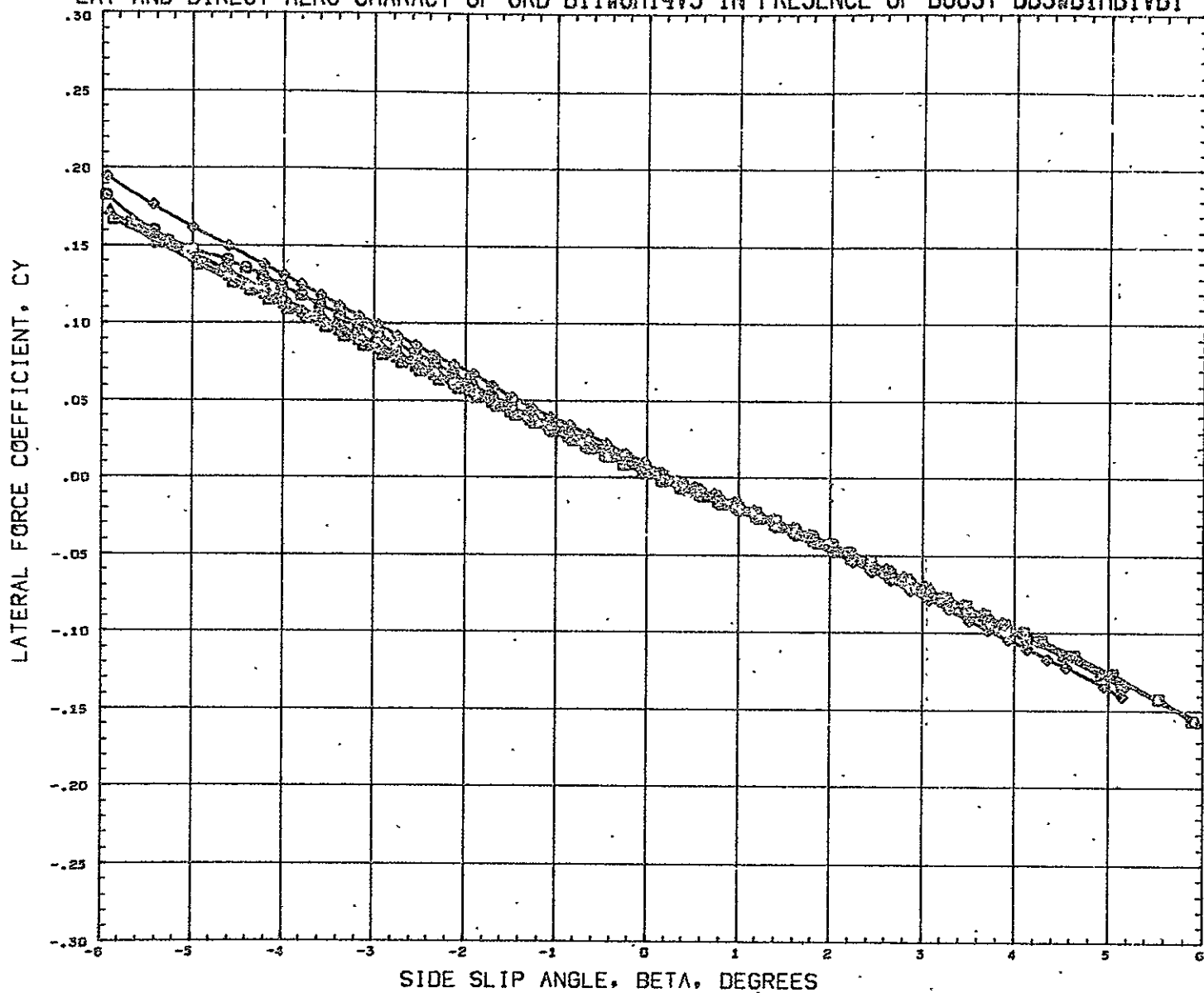
LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



SYMBOL	SEFFOS	PARAMETRIC VALUES
□	3.000	ALPHA 0.000 MACH 2.990
◻	4.000	ALPHA 0.000 BETB 5.000
◇	5.000	
△	6.000	
▽	8.000	
◊	12.000	REFERENCE FILE .0000

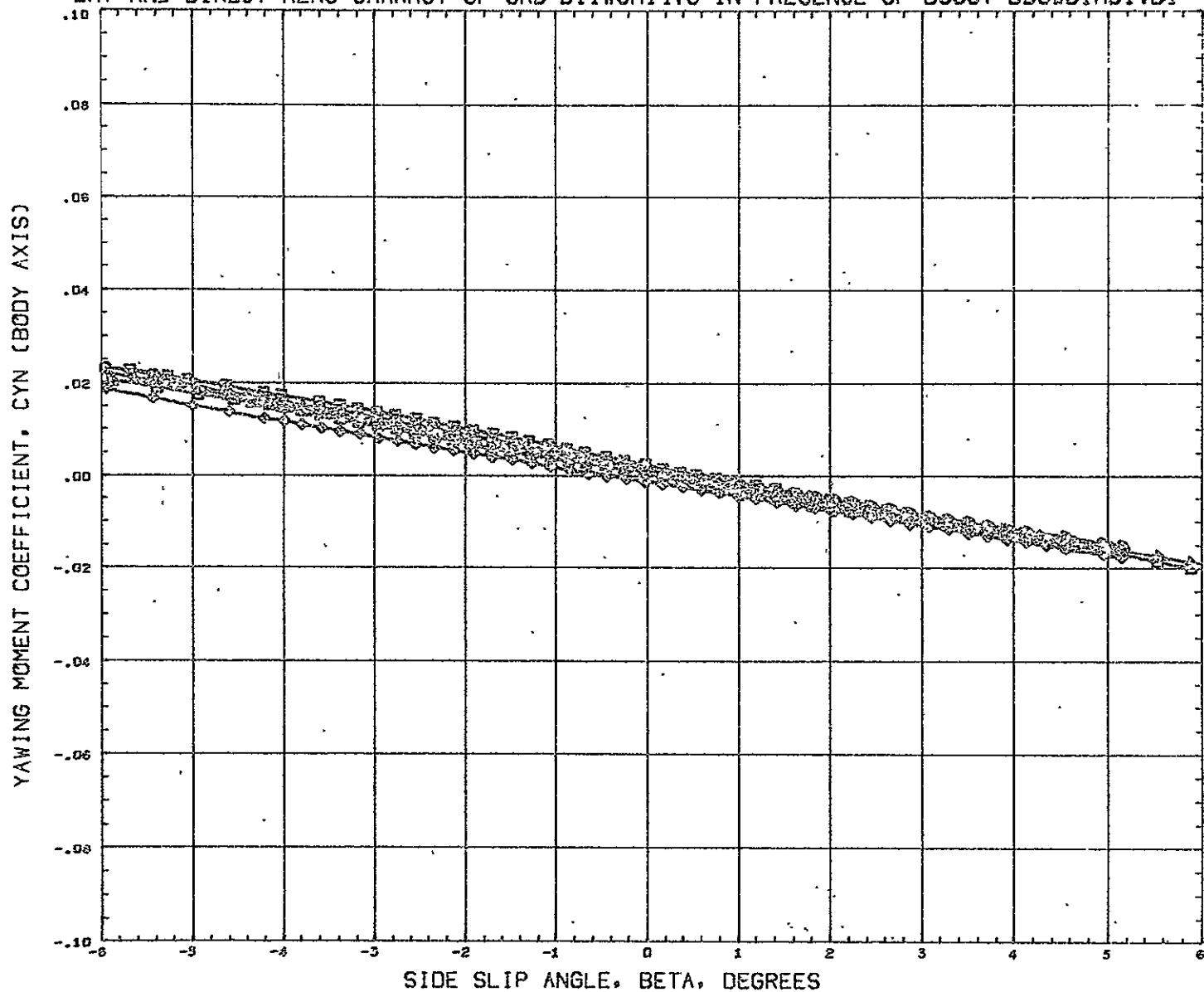
REFERENCE INFORMATION		
REFS	20.6640	SQ IN
REFL	1.8540	IN
REFB	12.0000	IN
XMRP	9.3680	IN
YMRP	0.0000	IN
ZMRP	1.4600	IN
SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



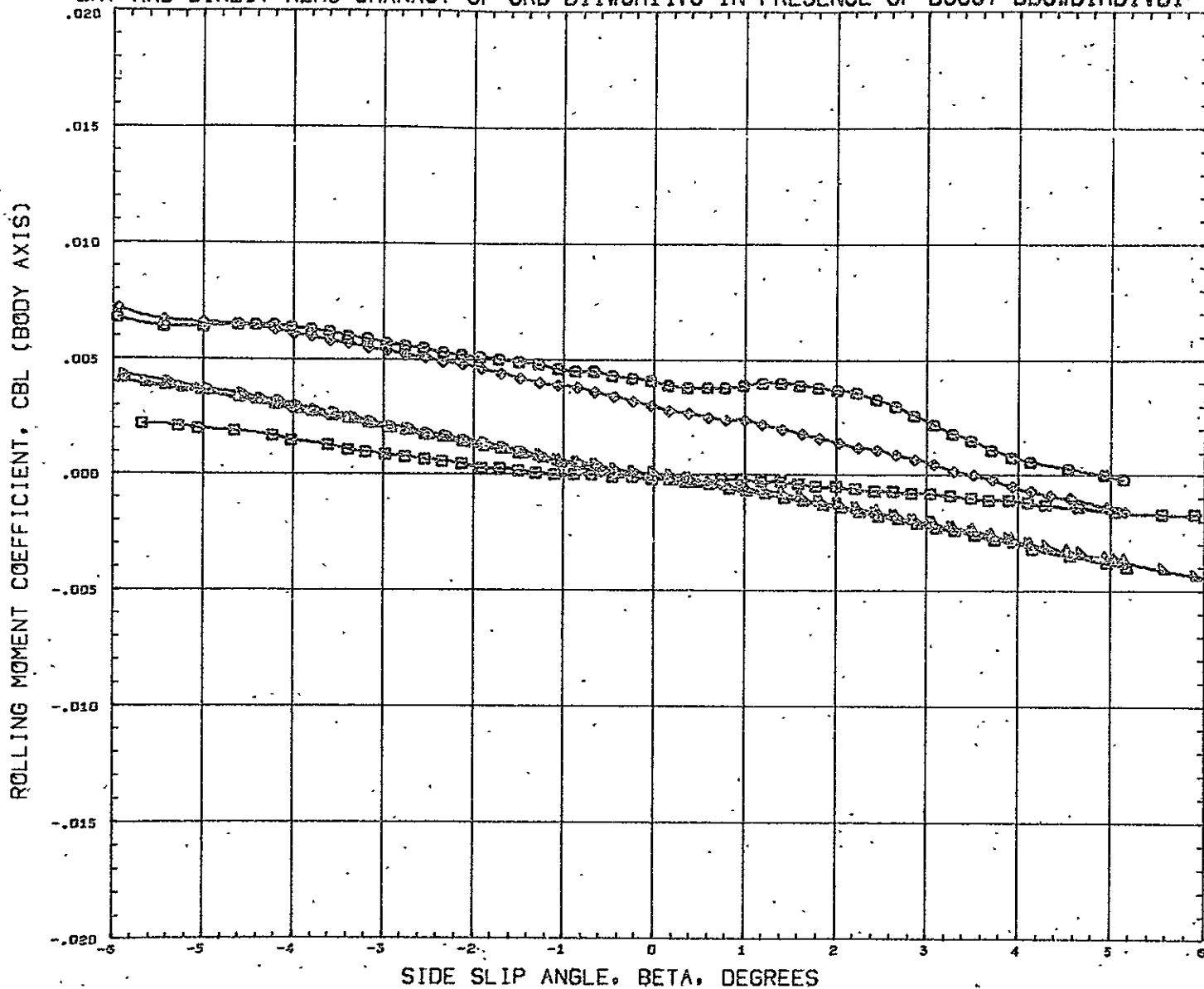
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	3.000	ALPHA	0.000	HACH	4.390	REFS	20.6640	SQ IN
□	4.000	ALFB	0.000	BETB	5.000	REFL	1.8540	IN
◇	6.000					REFB	12.0000	IN
△	8.000					XMRP	9.3880	IN
▴	9.000					YMRP	0.0000	IN
○	12.000	REFERENCE FILE	.0000			ZMRP	1.4600	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



SYMBOL		SEPPOS		PARAMETRIC VALUES			REFERENCE INFORMATION		
□	3.000	ALPHA	0.000	MACH	4.390		REFS	20.6640	SQ IN
□	4.000	ALPB	0.000	BETA	5.000		REFL	1.8540	IN
◇	6.000						REFB	12.0000	IN
△	8.000						XMRP	9.3880	IN
▽	9.000						YHRF	0.0000	IN
D	12.000	REFERENCE FILE					ZHRF	1.4600	IN
							SCALE	0.0088	IN

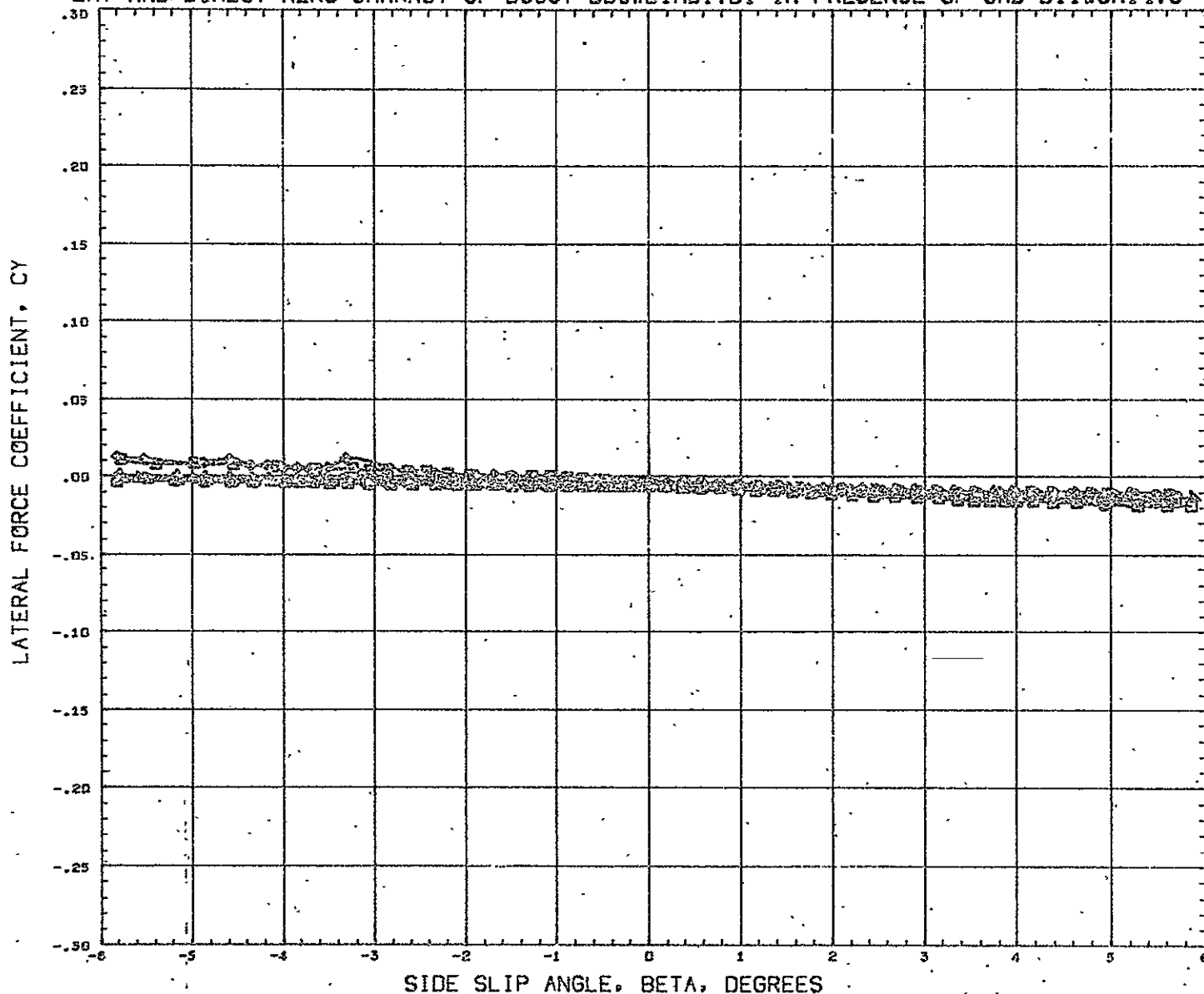
LAT AND DIRECT AERO CHARACT OF ORB B11W6H14V5 IN PRESENCE OF BOOST BB3WB1HB1VB1



SYMBOL	SEFFOS	PARAMETRIC VALUES
○	3.000	ALPHA 0.000 MACH 4.390
□	4.000	ALPB 0.000 BCTB 5.000
◇	6.000	
△	8.000	
▽	9.000	
◊	12.000	REFERENCE FILE .0000.

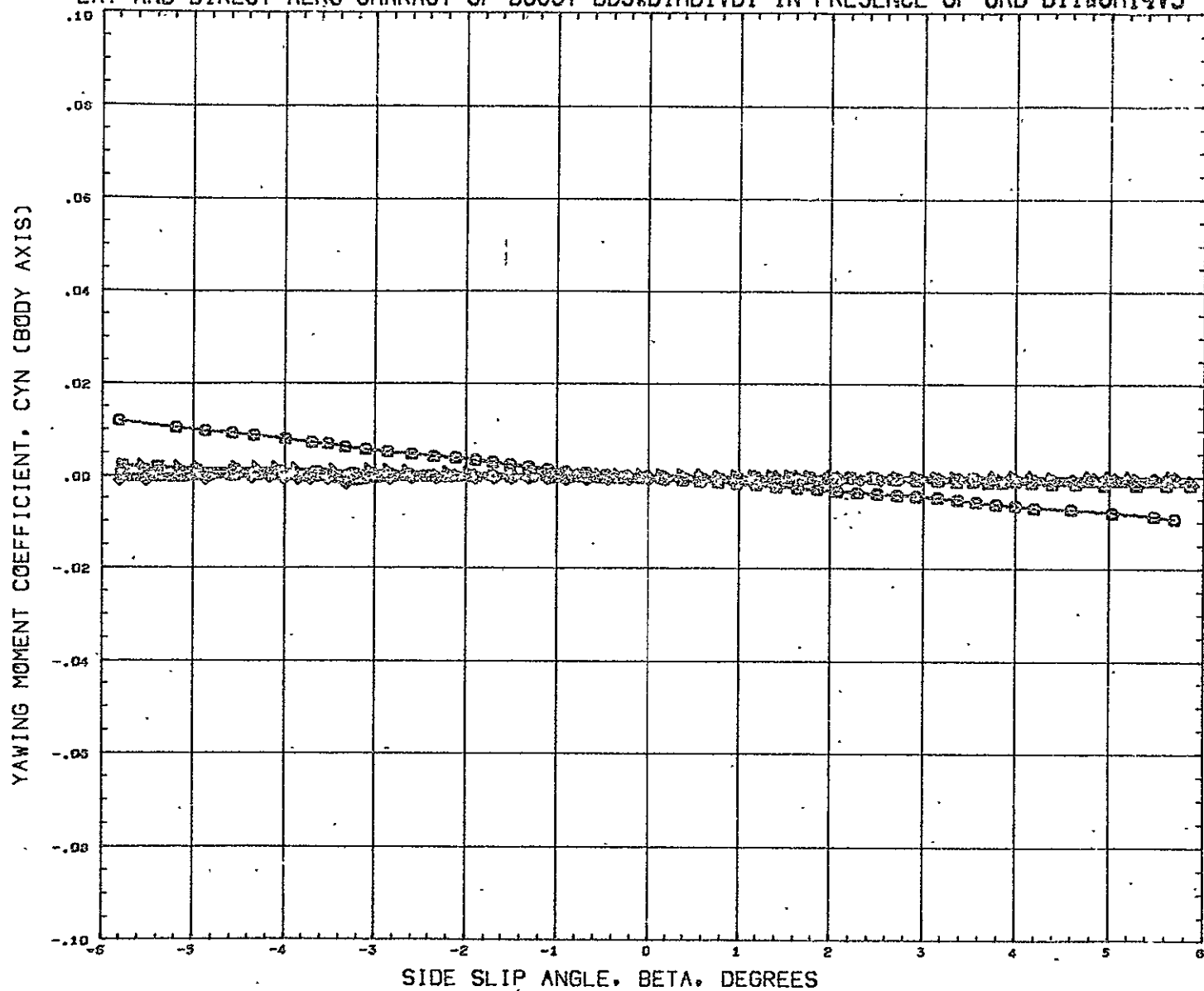
REFERENCE INFORMATION	
REFS	20.6540 SQ IN.
REFL	1.8540 IN
REFB	12.0000 IN
XMRP	9.3880 IN
YMRP	0.0000 IN
ZMRP	1.4600 IN
SCALE	0.0088

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



SYMBOL	SEPPPOS	PARAMETRIC VALUES	REFERENCE INFORMATION
O	3.000	ALPHA 0.000 ALPB 0.000	REFS 54.6580 SQ IN
□	4.000	BETB 0.000 HACH 1.810	REFL 2.9920 IN
○	6.000		REFB 19.7000 IN
△	8.000		XHRF 15.8990 IN
▽	9.000		YHRF 0.0000 IN
◇	12.000	REFERENCE FILE .0000	ZHRF 2.0000 IN
			SCALE 0.0088

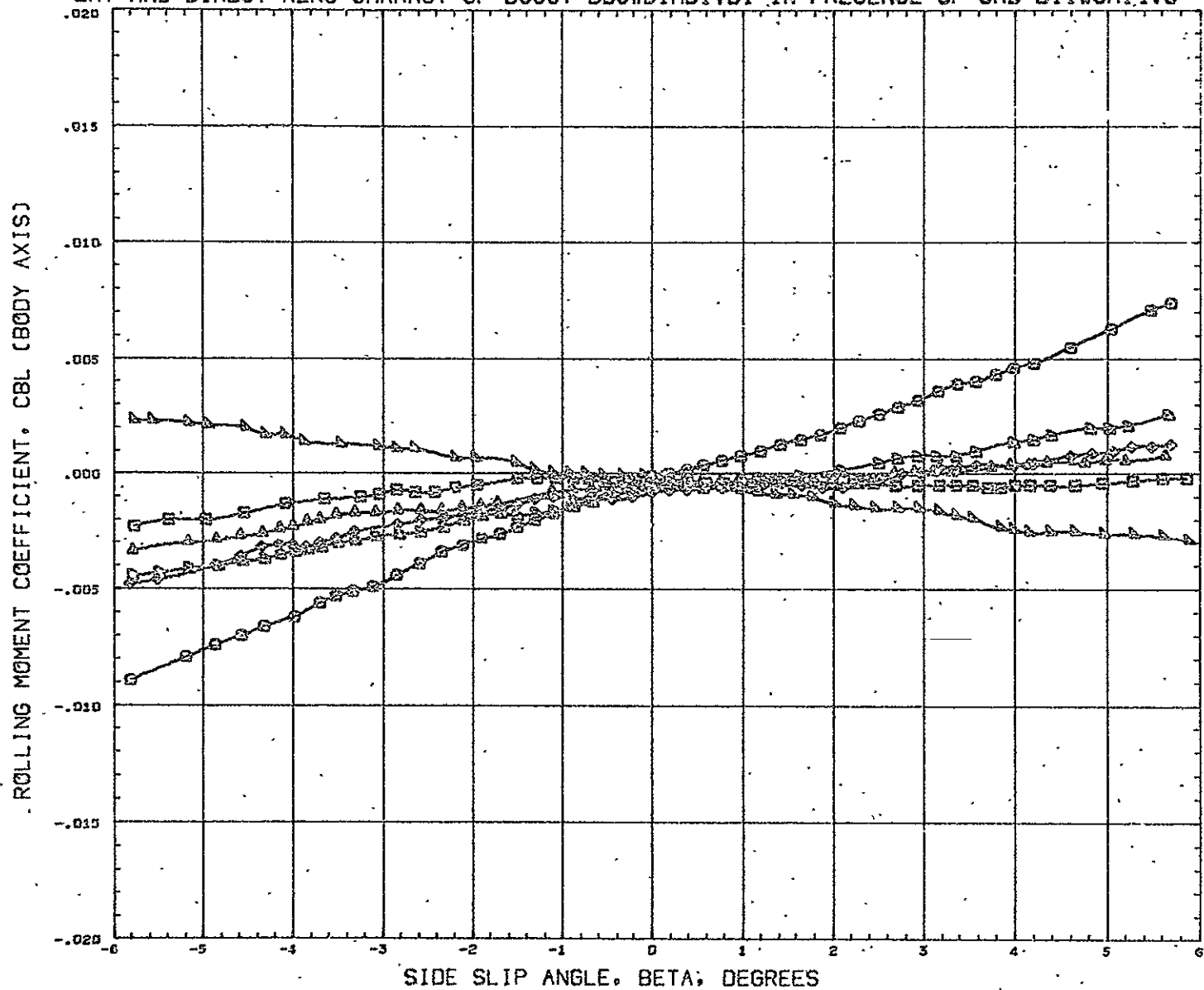
LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



SYMBOL	SEFFOS	PARAMETRIC VALUES
□	3.000	ALPHA 0.000 ALFB 0.000
◻	4.000	BETB 0.000 HACH 1.610
◻	6.000	
◻	8.000	
◻	9.000	
◻	12.000	REFERENCE FILE .0000

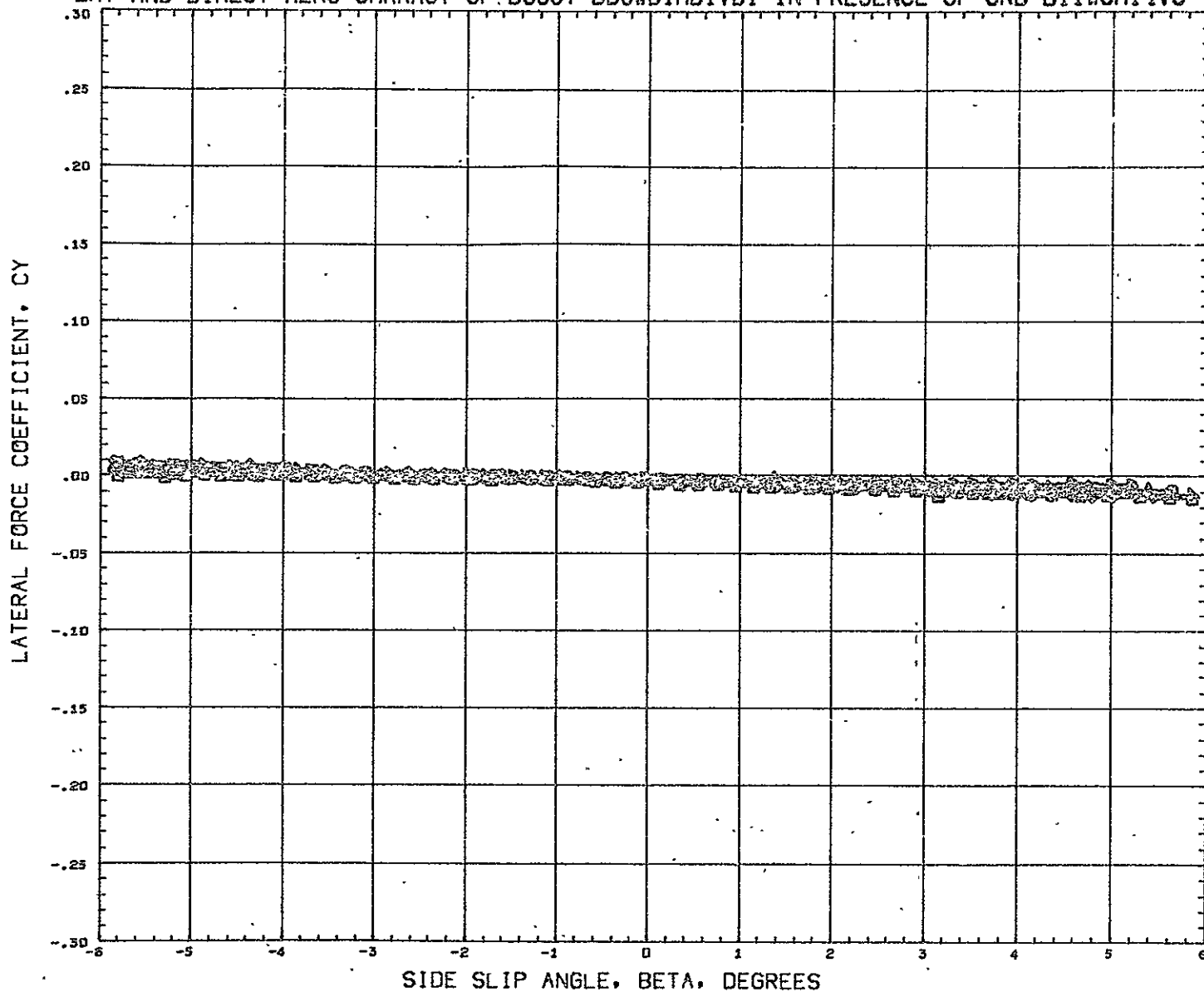
REFERENCE INFORMATION		
REFS	54.6580	SQ IN
REFL	2.9920	IN
REFB	19.7000	IN
XHRF	15.8990	IN
YHRF	0.0000	IN
ZHRF	2.0000	IN
SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



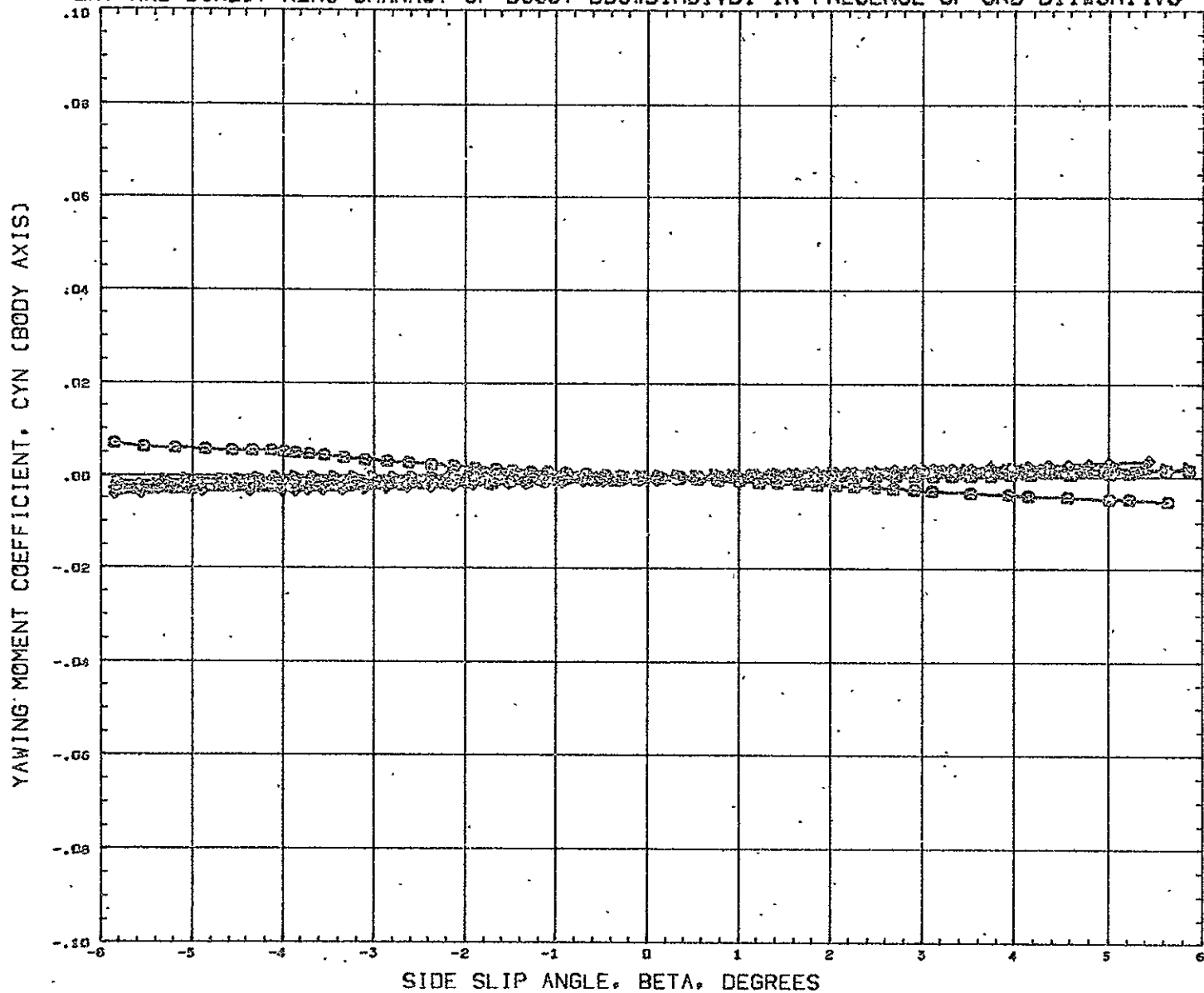
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□	4.000	BETB 0.000 MACH 1.810	REFL 2.9920 IN
◇	6.000		REFB 19.7000 IN
△	8.000		XMRP 15.6990 IN
▽	9.000		YMRP 0.0000 IN
◇	12.000	REFERENCE FILE	ZMRP 2.0000 IN
			SCALE 0.0088

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



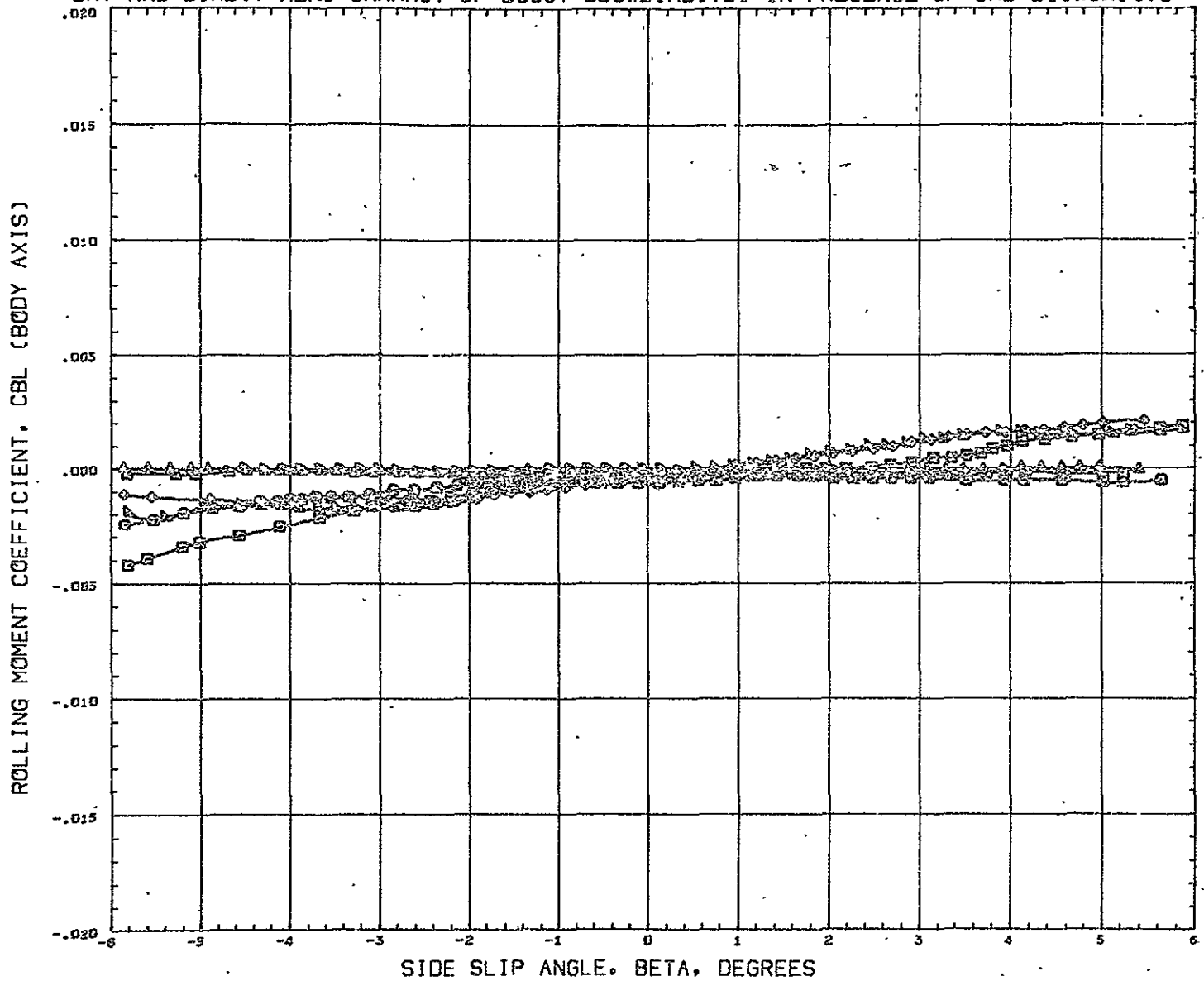
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	3.000	ALPHA	0.000	ALPB	0.000	REFS	54.6580	SQ IN
□	4.000	BETB	0.000	HACH	2.990	REFL	2.9920	IN
◇	6.000					REFB	19.7000	IN
△	8.000					XHRP	15.8990	IN
△	9.000					YHRP	0.0000	IN
△	12.000	REFERENCE FILE			.0000	ZHRP	2.0000	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



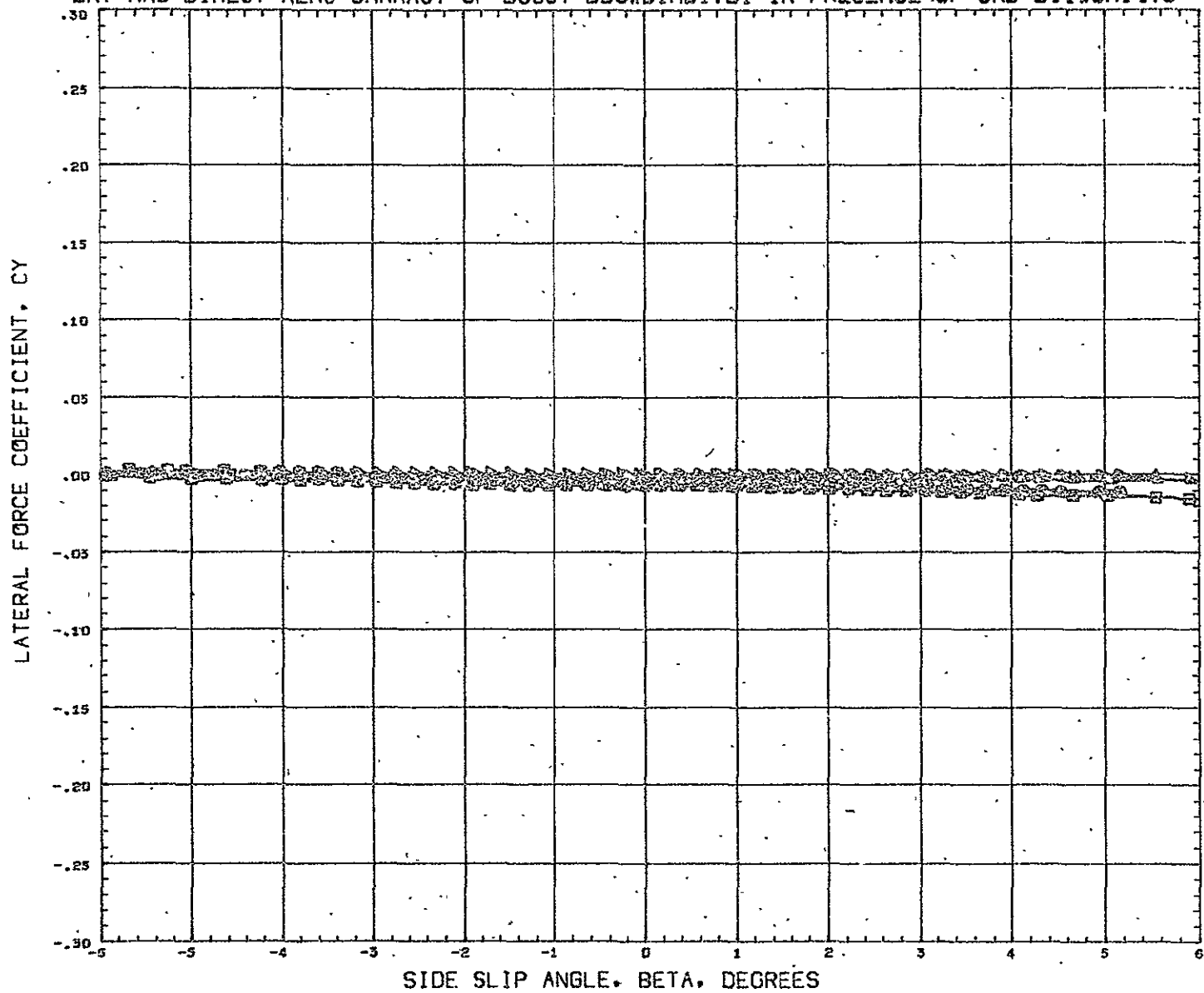
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□	3.000	ALPHA 0.000 ALPB 0.000	REFS 54.6580 SQ IN
□	4.000	BETB 0.000 MACH 2.990	REFL 2.9920 IN
◇	6.000		REFB 19.7000 IN
△	8.000		XHRP 15.8990 IN
▽	9.000		YHRP 0.0000 IN
◇	12.000	REFERENCE FILE .0000	ZHRP 2.0000 IN
			SCALE 0.0088

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



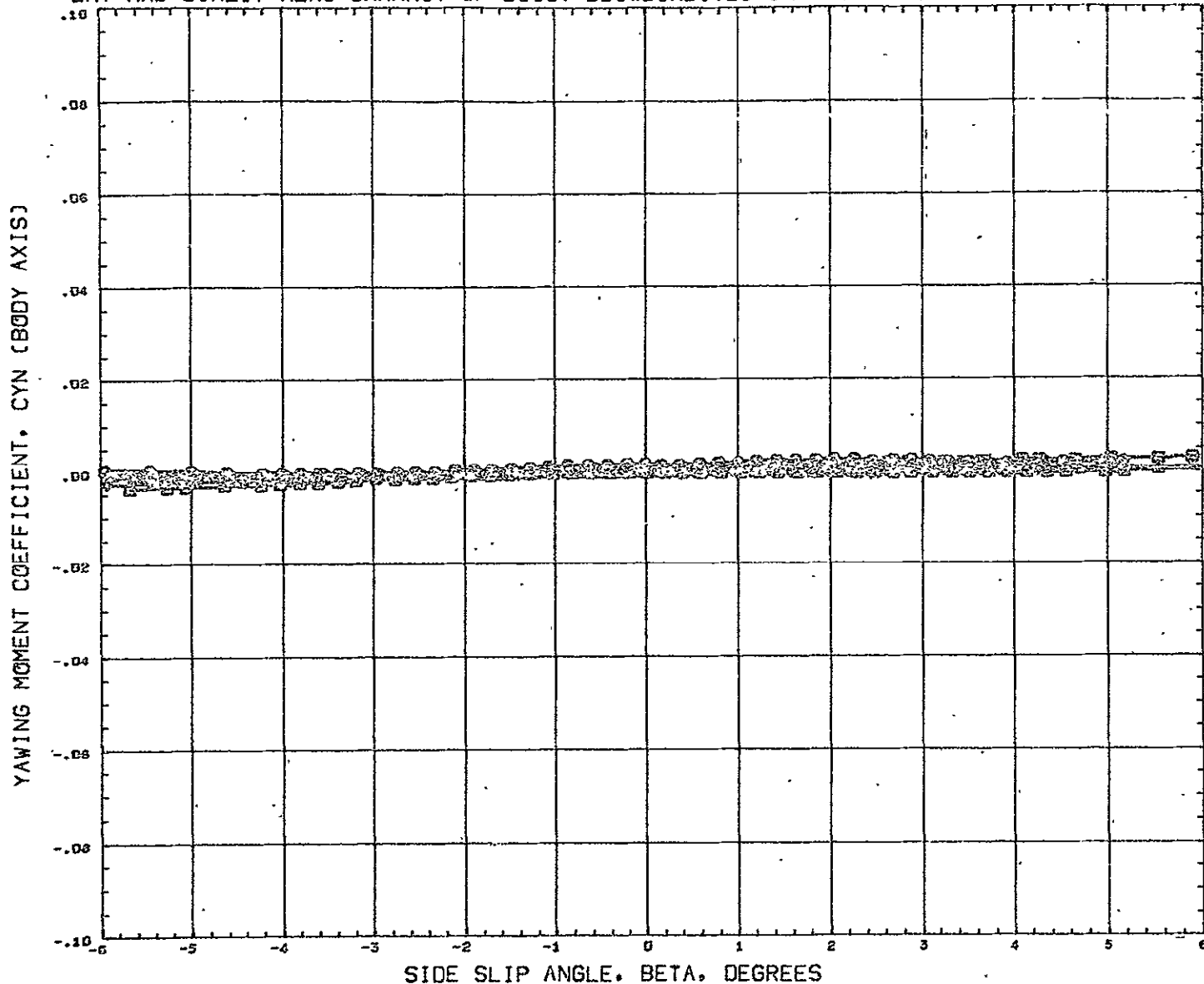
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◻	4.000	BETB	0.000	NACH	2.990	REFL	2.9920 IN
◊	6.000					REFB	19.7000 IN
△	8.000					XHRP	15.8990 IN
▽	9.000					YMRP	0.0000 IN
◇	12.000	REFERENCE FILE			.0000	ZMRP	2.0000 IN
						SCALE	0.0068

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



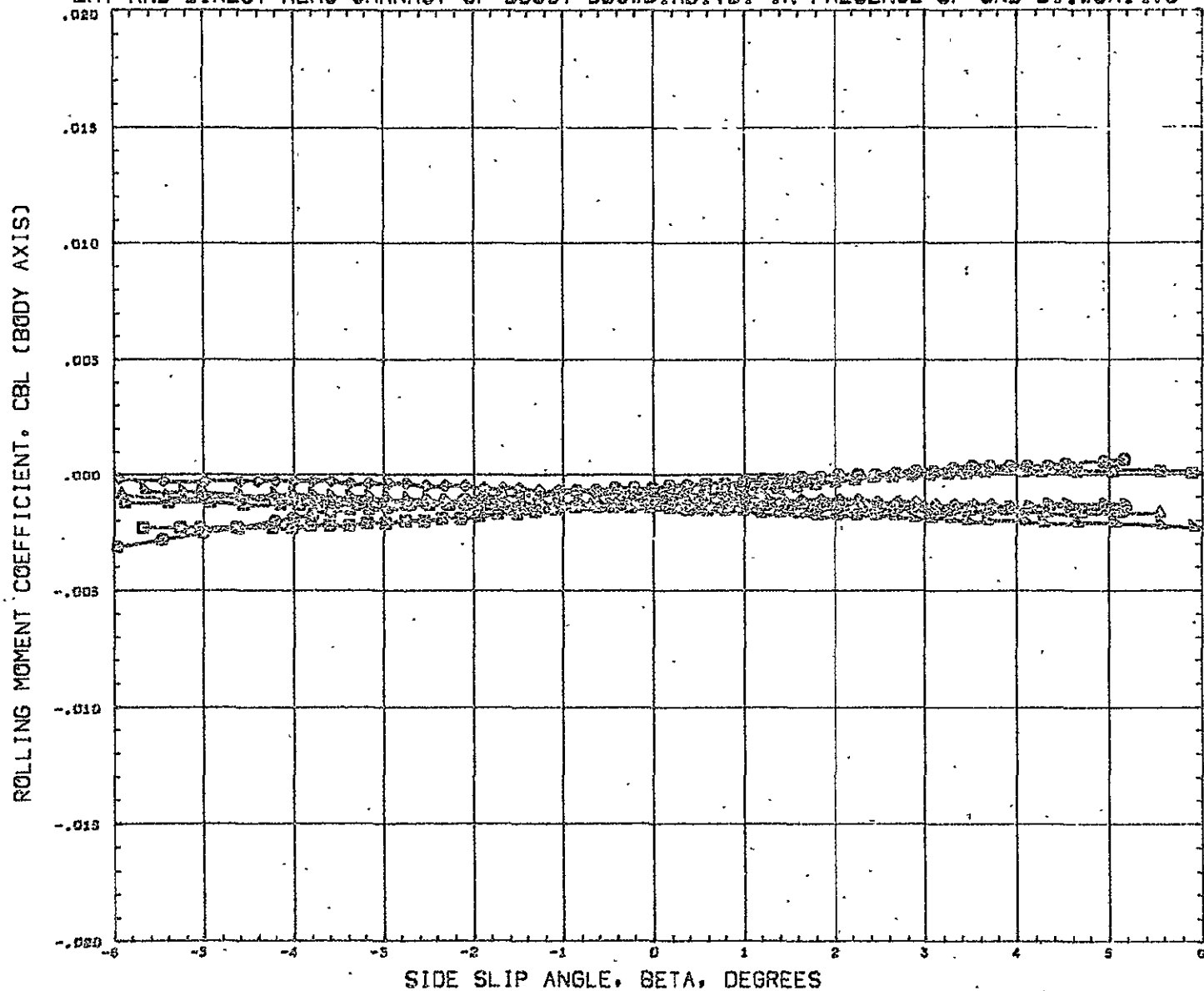
SYMBOL	SEPPOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
○	3.000	ALPHA	0.000	ALFB	0.000	REFS	54.6580	SQ IN
□	4.000	BETB	0.000	HACH	4.390	REFL	2.9920	IN
◇	6.000					REFB	19.7000	IN
△	8.000					XMRP	15.8990	IN
▽	9.000					YNRP	0.0000	IN
◊	12.000	REFERENCE FILE				ZHRP	2.0000	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



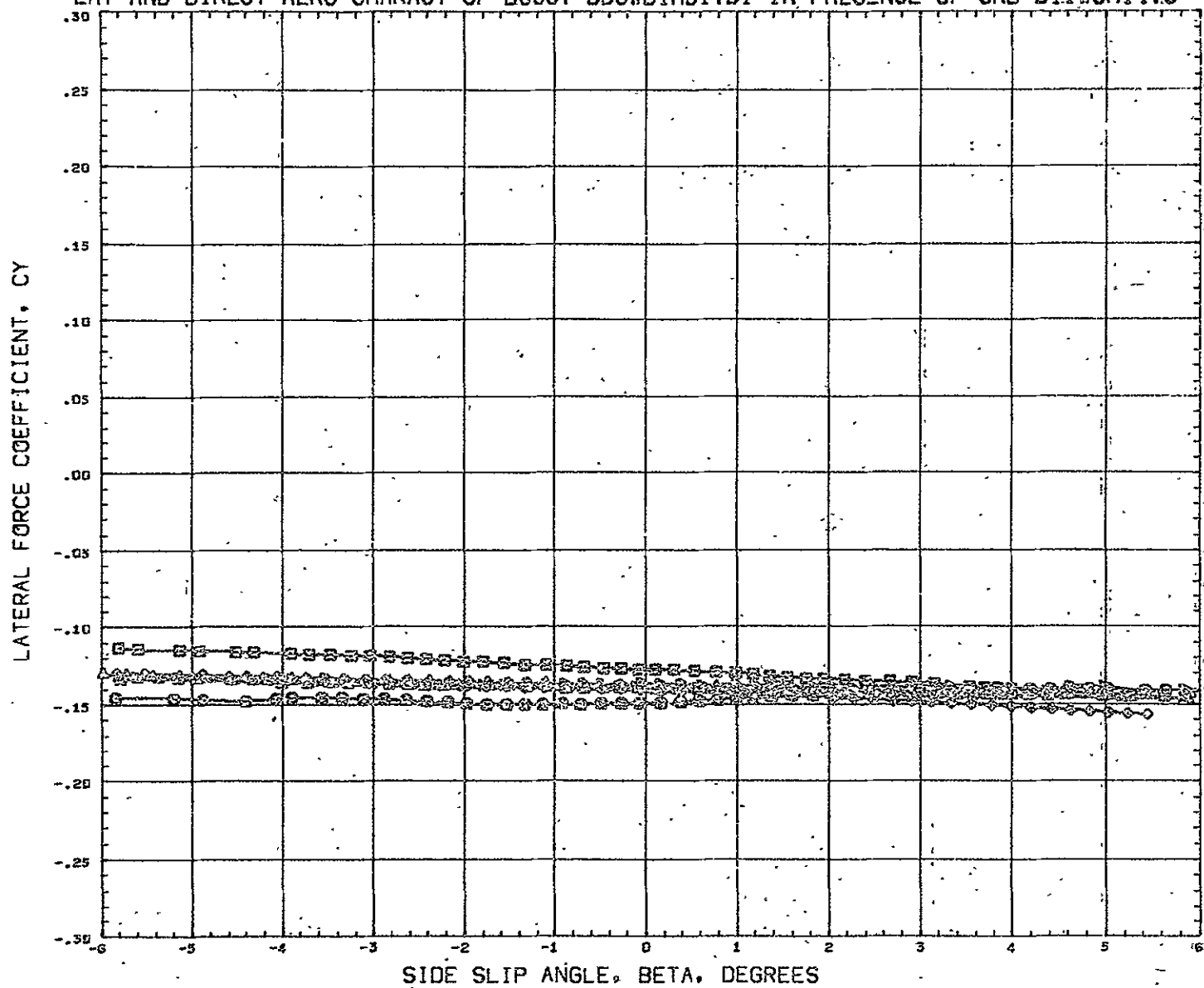
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□	3.000	ALPHA	0.000	ALPB	0.000		REFS	54.6580
□	4.000	BETB	0.000	HACH	4.390		REFL	2.9920
◇	6.000						REFB	19.7000
△	8.000						XNRF	15.8990
▽	9.000						YNRF	0.0000
◇	12.000	REFERENCE FILE	.0000				ZNRF	2.0000
							SCALE	0.0088

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



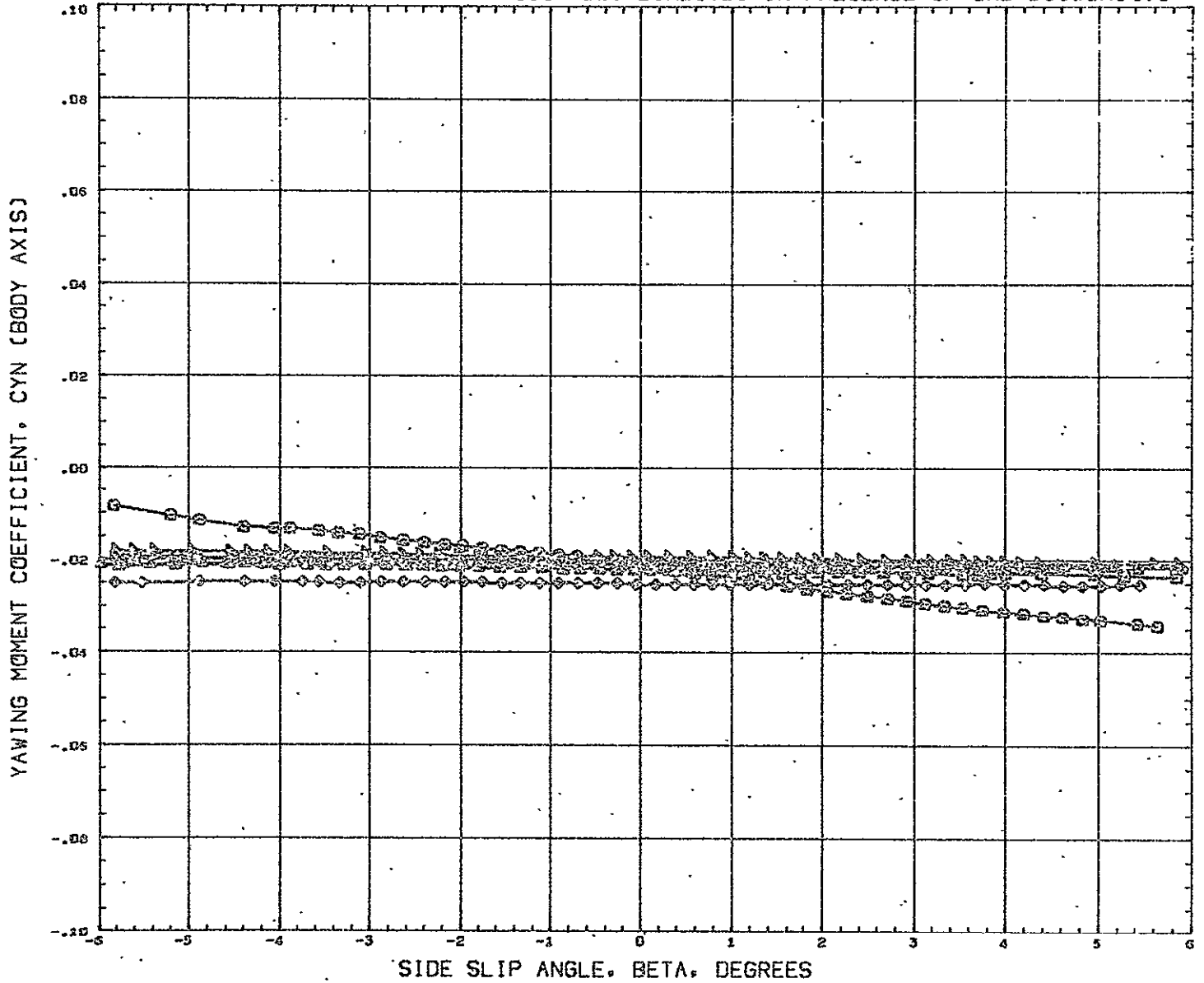
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◇		0.000					REFB	19.7000	IN
△		0.000					XMRP	13.8990	IN
▽		0.000					YMRP	0.0000	IN
◇		0.000					ZMRP	2.0000	IN
◇		16.000	REFERENCE FILE			.0000	SCALE	0.0028	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION	
□	3.000	ALPHA	0.000	ALPB.	0.000	REFS	54.6580 SQ IN
◻	4.000	BETB	5.000	HACH	1.810	REFL	2.9920 IN
◊	6.000					REFB	19.7000 IN
△	8.000					XMRP	15.8990 IN
▴	9.000					YMRP	0.0000 IN
◊	12.000	REFERENCE FILE	.0000			ZMRP	2.0000 IN
						SCALE	0.0088

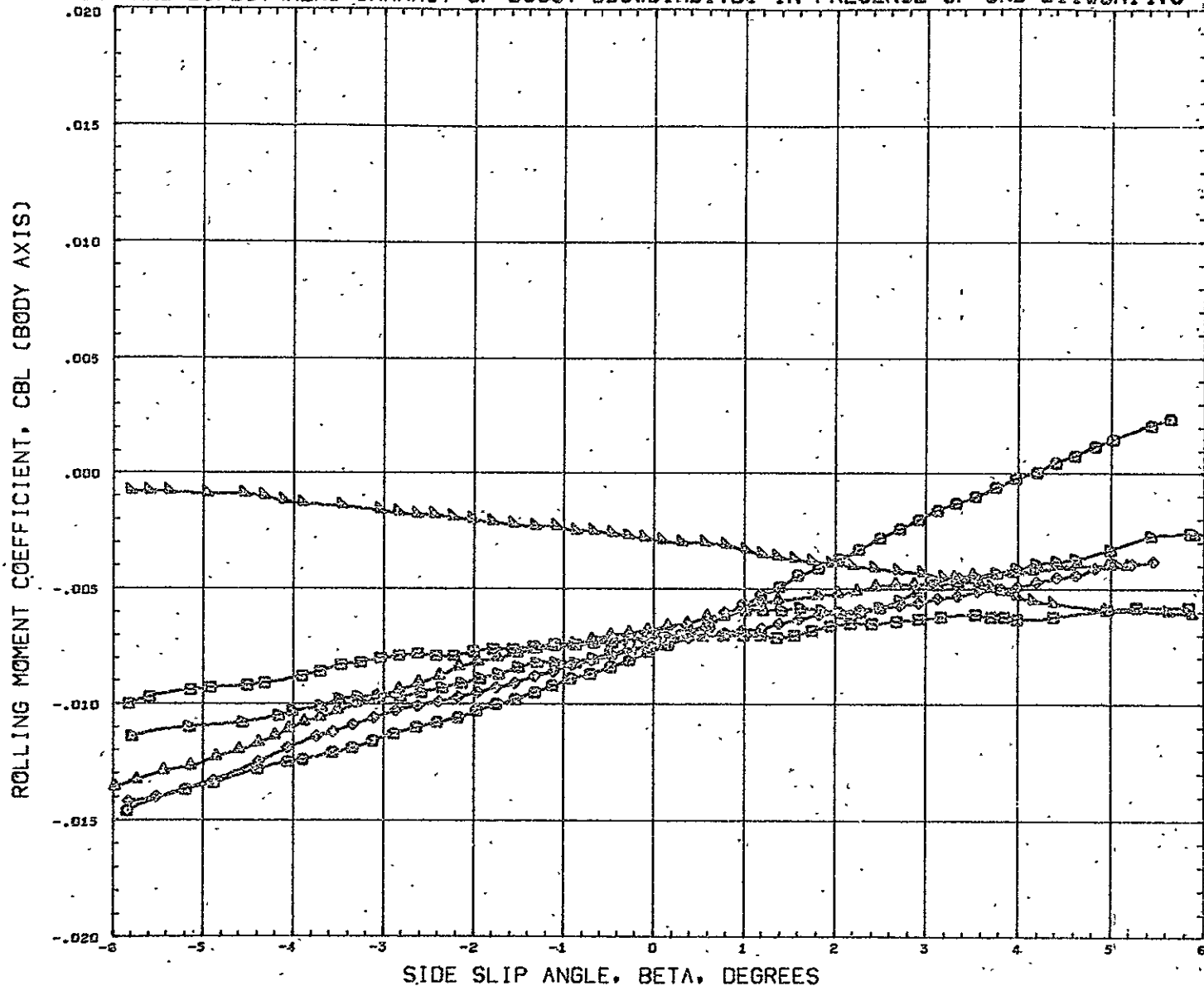
LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



SYMBOL	SEFFOS	PARAMETRIC VALUES			
□	3.000	ALPHA	0.000	ALPB	0.000
□	4.000	BETB	5.000	MACH	1.810
◇	6.000				
△	8.000				
▽	9.000				
○	12.000	REFERENCE FILE		.0000	

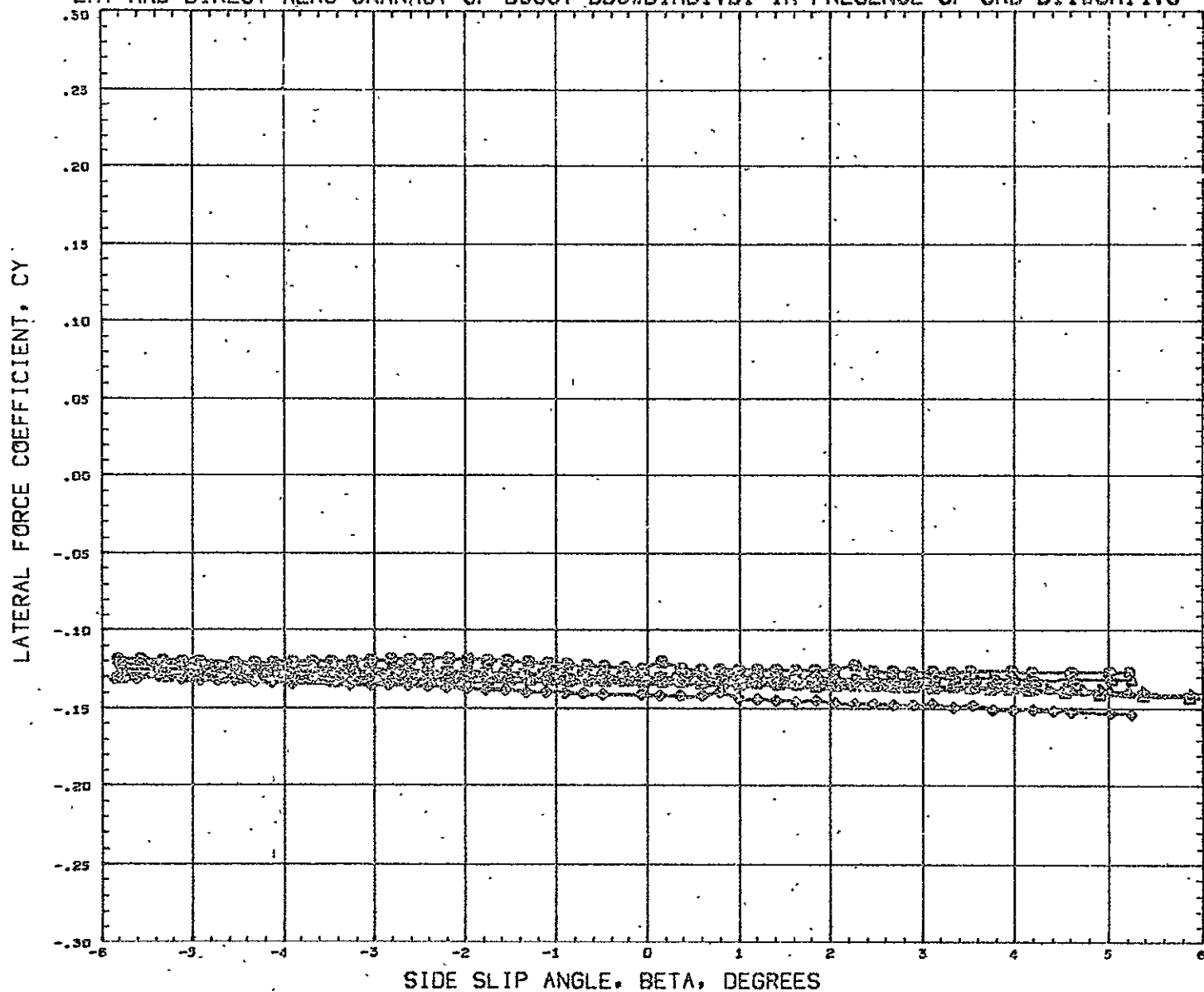
REFERENCE INFORMATION		
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REFL	2.9920	IN
REFB	19.7000	IN
XMRP	15.8990	IN
YMRP	0.0000	IN
ZMRP	2.0000	IN
SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



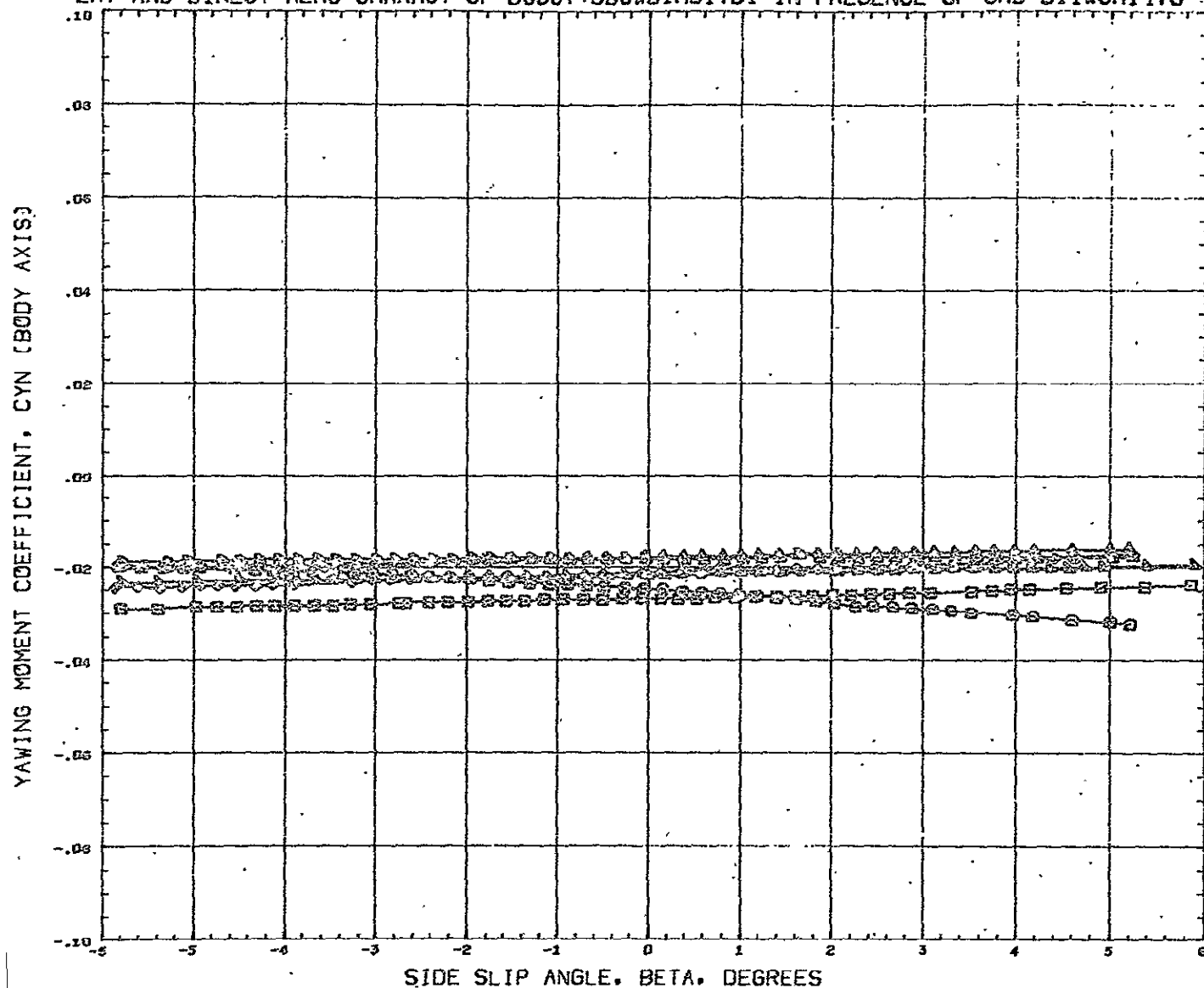
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◇	6.000		REFB 19.7000 IN
◇	8.000		XHRP 15.8990 IN
△	9.000		YHRP 0.0000 IN
△	12.000		ZHRP 2.0000 IN
D		REFERENCE FILE .0000	SCALE 0.0088

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



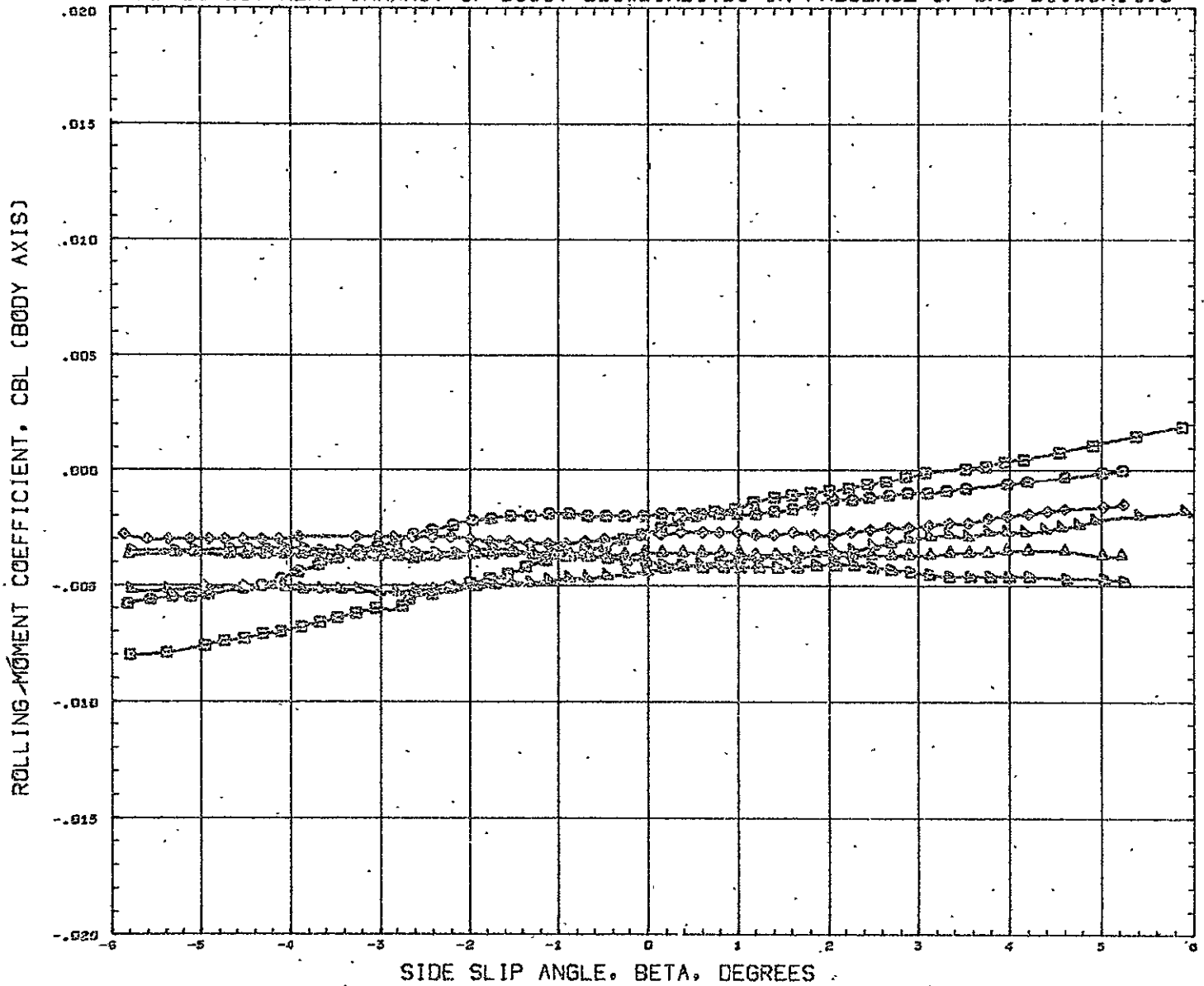
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□	4.000	BETA	5.000	MACH	2.990	REFL	2.9920	IN
◇	6.000					REFB	19.7000	IN
△	8.000					XMRP	15.8990	IN
▽	9.000					YMRP	0.0000	IN
◇	12.000	REFERENCE FILE				ZMRP	2.0000	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



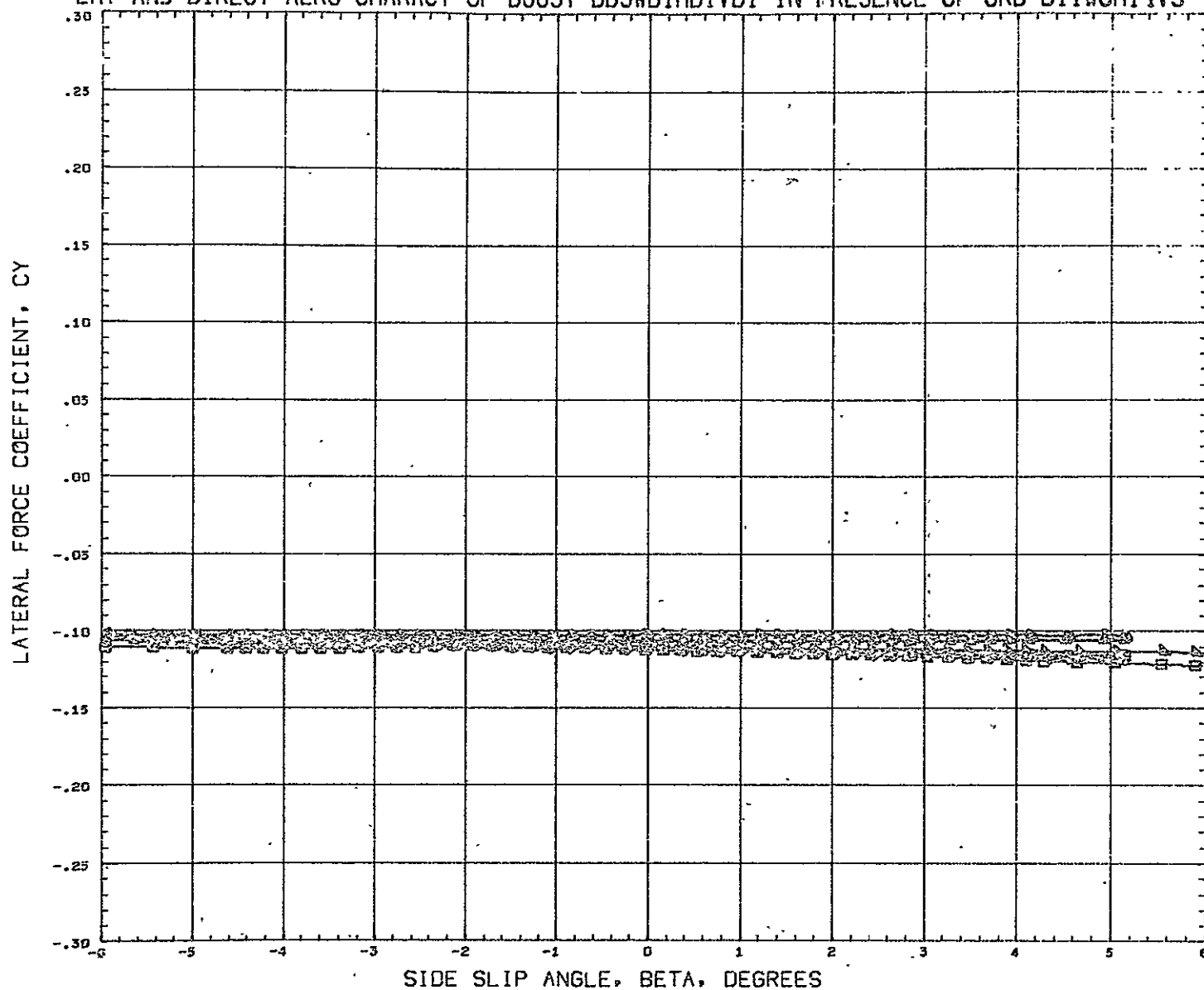
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SYMBOL	SEFFOS	ALPHA	ALPB	MACH	REFERENCE FILE	REFS	SQ IN
○	3.000	0.000	0.000	2.990		REFL	2.9920 IN
□	4.000	5.000				REFB	19.7000 IN
◇	6.000					XNRF	15.8990 IN
△	8.000					YNRF	0.0000 IN
▽	9.000					ZHRP	2.0000 IN
D	12.000				.0000	SCALE	0.0088

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



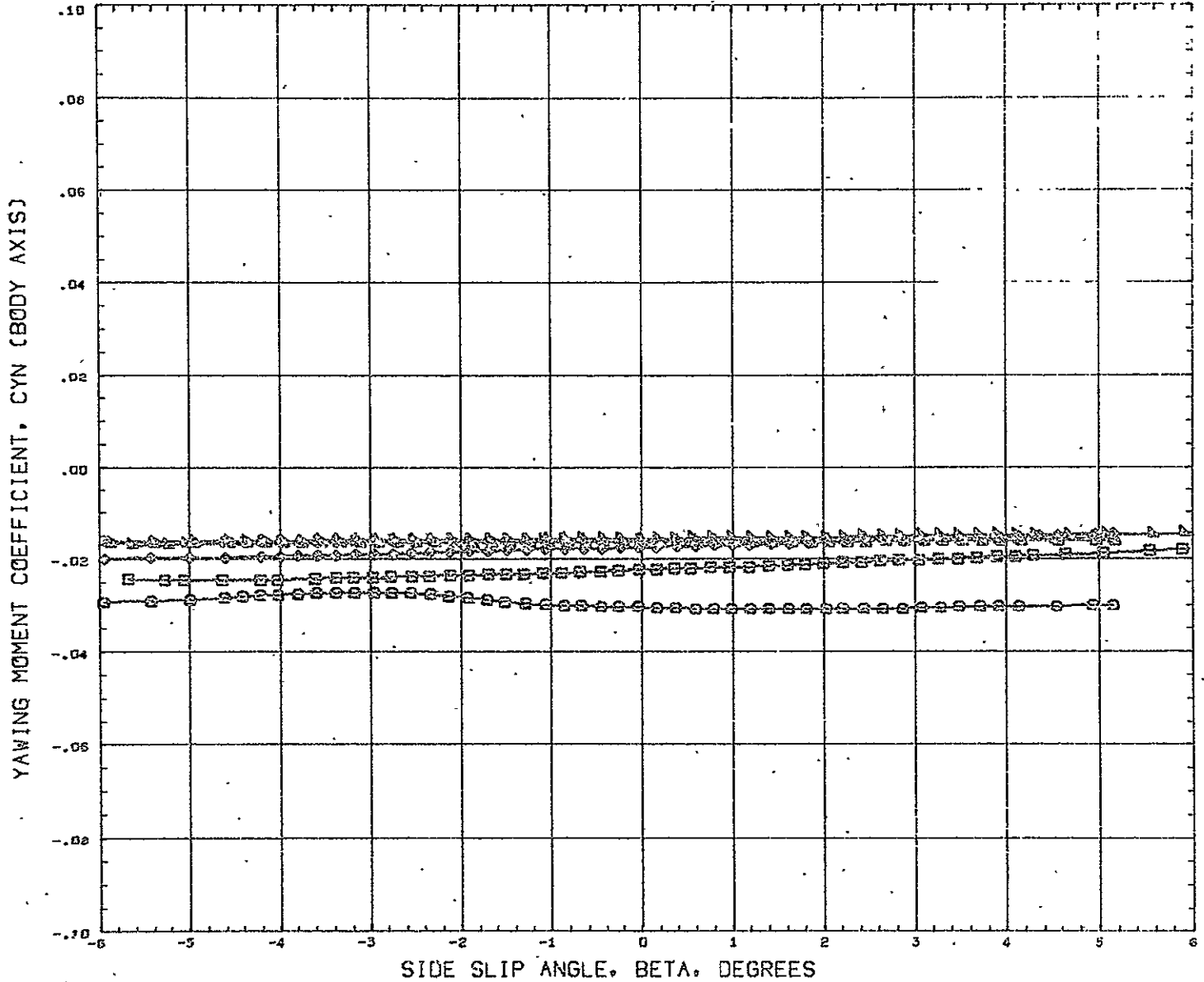
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
◇	3.000	ALPHA	0.000	ALPB	0.000	REFS	54.6580	SQ IN
□	4.000	BETB	5.000	HACH	2.990	REFL	2.9920	IN
◇	6.000					REFB	19.7000	IN
△	8.000					XMRP	15.8990	IN
▽	9.000					YMRP	0.0000	IN
◇	12.000	REFERENCE FILE	.0000			ZMRP	2.0000	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



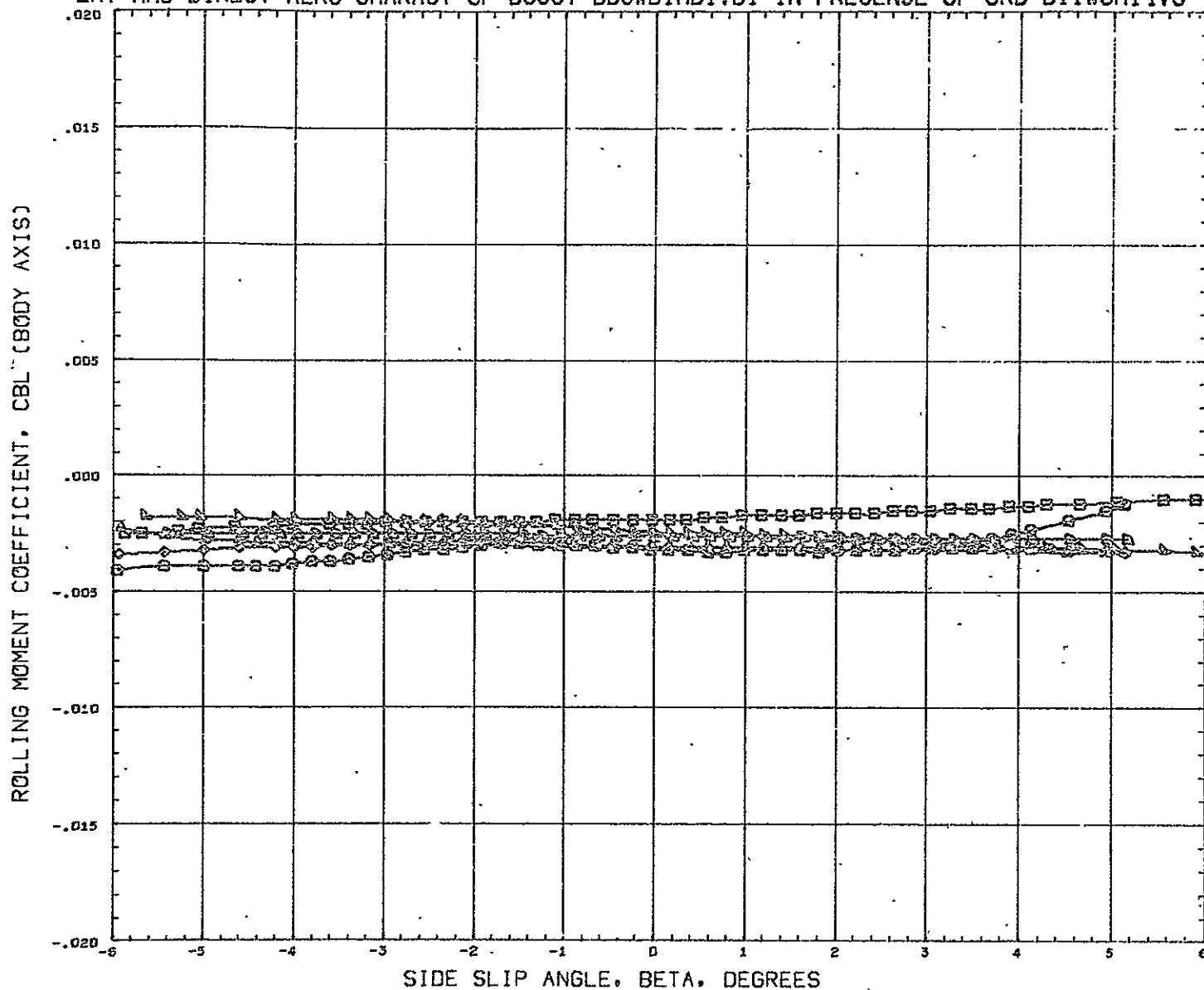
SYMBOL	SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
□	3.000	ALPHA	0.000	ALPB	0.000	REFS	54.6580	SQ IN
□	4.000	BETB	5.000	HACH	4.390	REFL	2.9920	IN
◇	6.000					REFB	19.7000	IN
△	8.000					XHRP	15.8990	IN
△	9.000					YHRP	0.0000	IN
△	12.000	REFERENCE FILE			.0000	ZHRP	2.0000	IN
						SCALE	0.0008	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



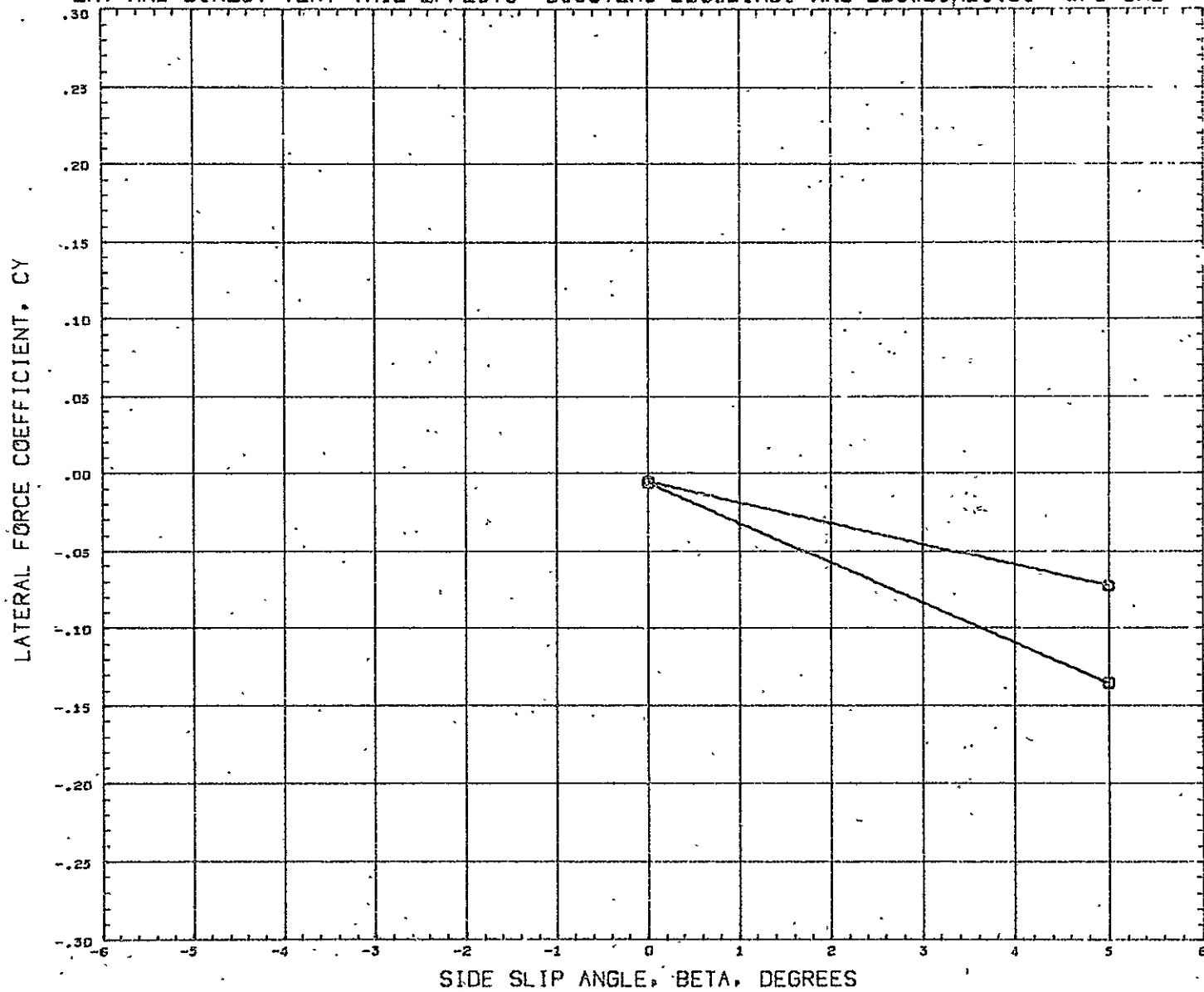
SYMBOL		PARAMETRIC VALUES				REFERENCE INFORMATION		
□	3.000	ALPHA	0.000	ALPB	0.000	REFS	54.6580	SQ IN
□	4.000	BETS	5.000	MACH	4.390	REFL	2.9920	IN
◇	6.000					REFB	19.7000	IN
△	8.000					XMRP	15.8990	IN
▷	9.000					YMRP	0.0000	IN
▷	12.000	REFERENCE FILE		.0000		ZMRP	2.0000	IN
						SCALE	0.0088	

LAT AND DIRECT AERO CHARACT OF BOOST BB3WB1HB1VB1 IN PRESENCE OF ORB B11W6H14V5



SYMBOL		SEFFOS	PARAMETRIC VALUES				REFERENCE INFORMATION		
○		3.000	ALPHA	0.000	ALPB	0.000	REFS	54.6580	SQ IN
□		4.000	BETA	5.000	MACH	4.390	REFL	2.9920	IN
◇		6.000					REFB	19.7000	IN
△		8.000					XMRP	15.8990	IN
▽		9.000					YMRP	0.0000	IN
D		12.000	REFERENCE FILE			.0000	ZMRP	2.0000	IN
							SCALE	0.0088	

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB



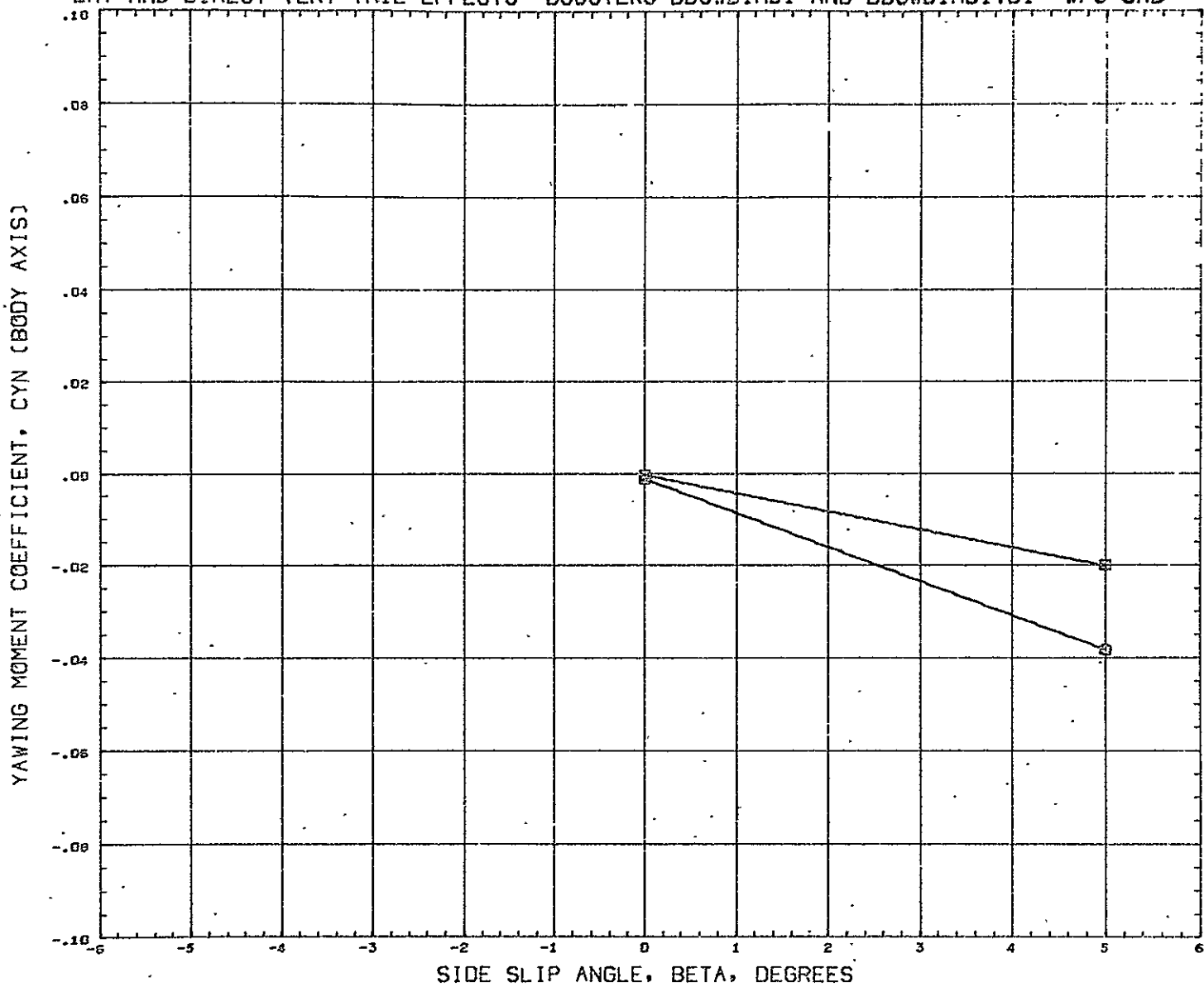
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(RCH110) ☐ NSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

PARAMETRIC VALUES
MACH 1.810

REFERENCE INFORMATION
REFS 54.6580 SQ IN
REFL 2.9920 IN
REFB 19.7000 IN
XNRP 15.8990 IN
YNRP 0.0000 IN
ZNRP 2.0000 IN
SCALE 0.0088

SEFPOS 15.000

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB



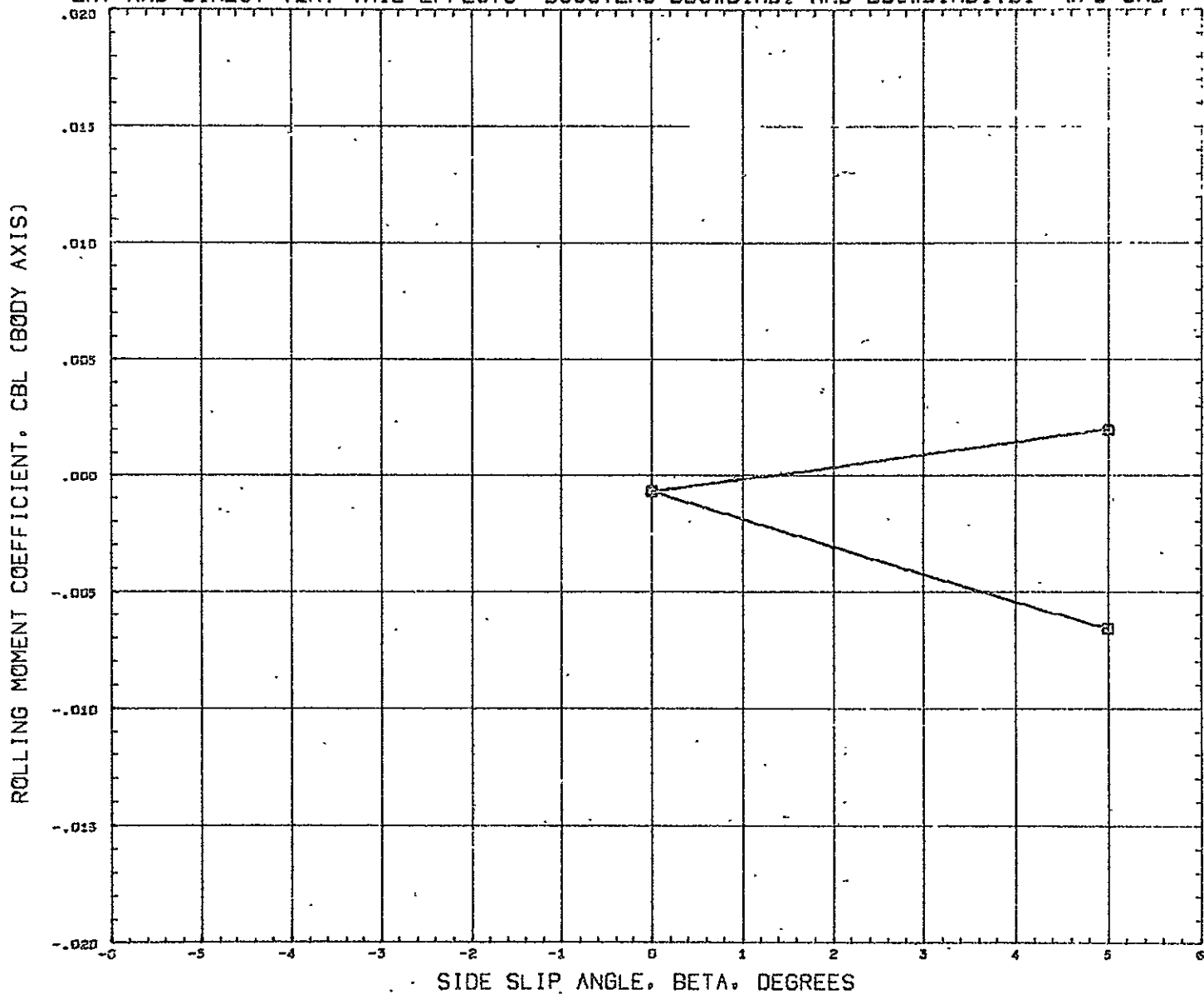
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(RCH109) □ MSC S-28 BOOSTER BB3WB1HB1 ALONE
(RCH110) □ MSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

PARAMETRIC VALUES
MACH 1.810

REFERENCE INFORMATION
REFS 54.6580 SQ IN.
REFL 2.9920 IN
REFB 19.7000 IN
XNRP 15.8990 IN
YNRP 0.0000 IN
ZMRP 2.0000 IN
SCALE 0.0088

SEFFOS 15.000

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB



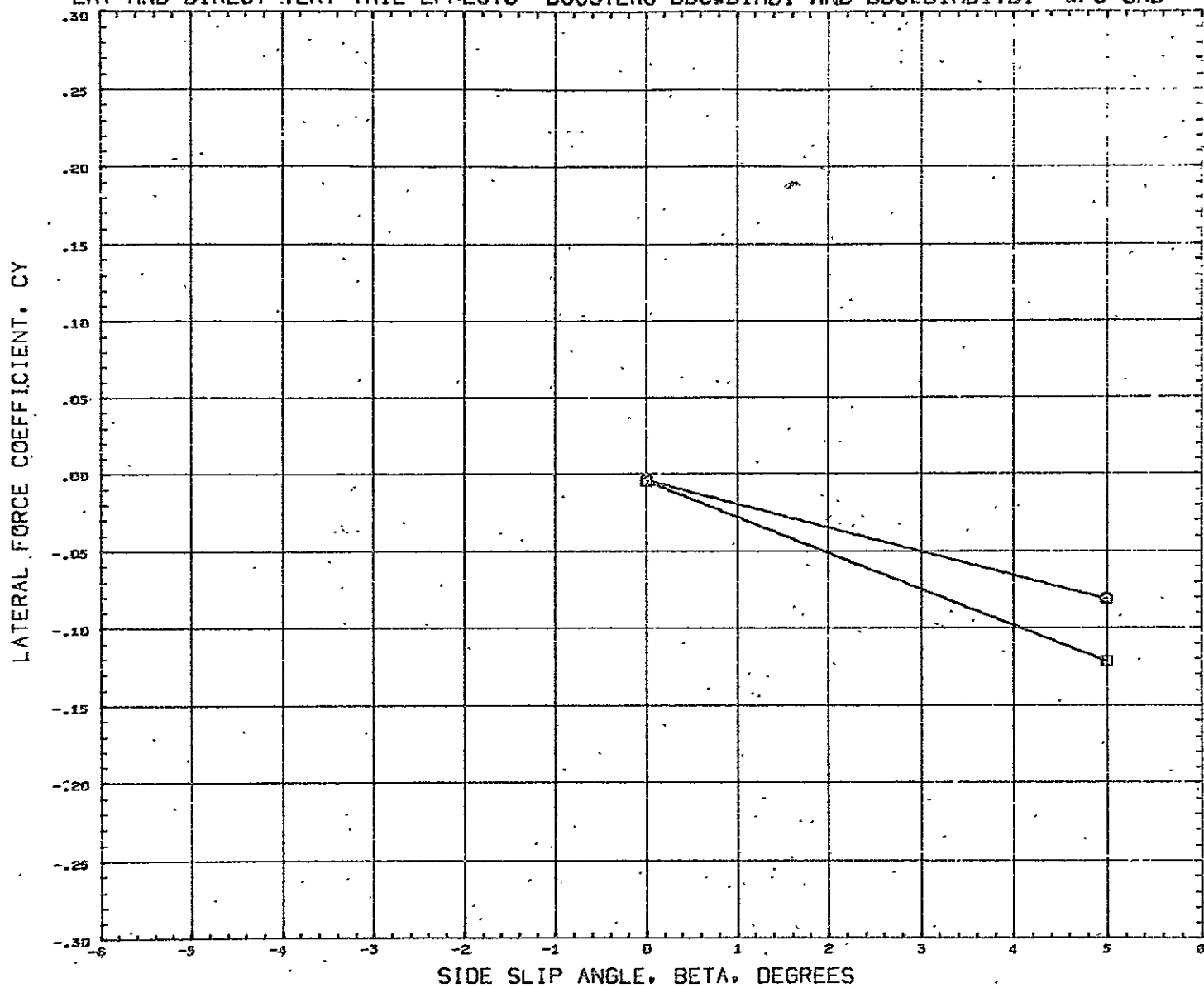
DATA SET SYMBOL CONFIGURATION DESCRIPTION
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 (RCH110) ☐ HSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

PARAMETRIC VALUES
 MACH 1.810

REFERENCE INFORMATION
 REFS 54.6580 SQ IN
 REFL 2.9920 IN
 REFB 19.7000 IN
 XMRP 15.8990 IN
 YMRP 0.0000 IN
 ZMRP 2.0000 IN
 SCALE 0.0088

SEFFOS 15.000

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB



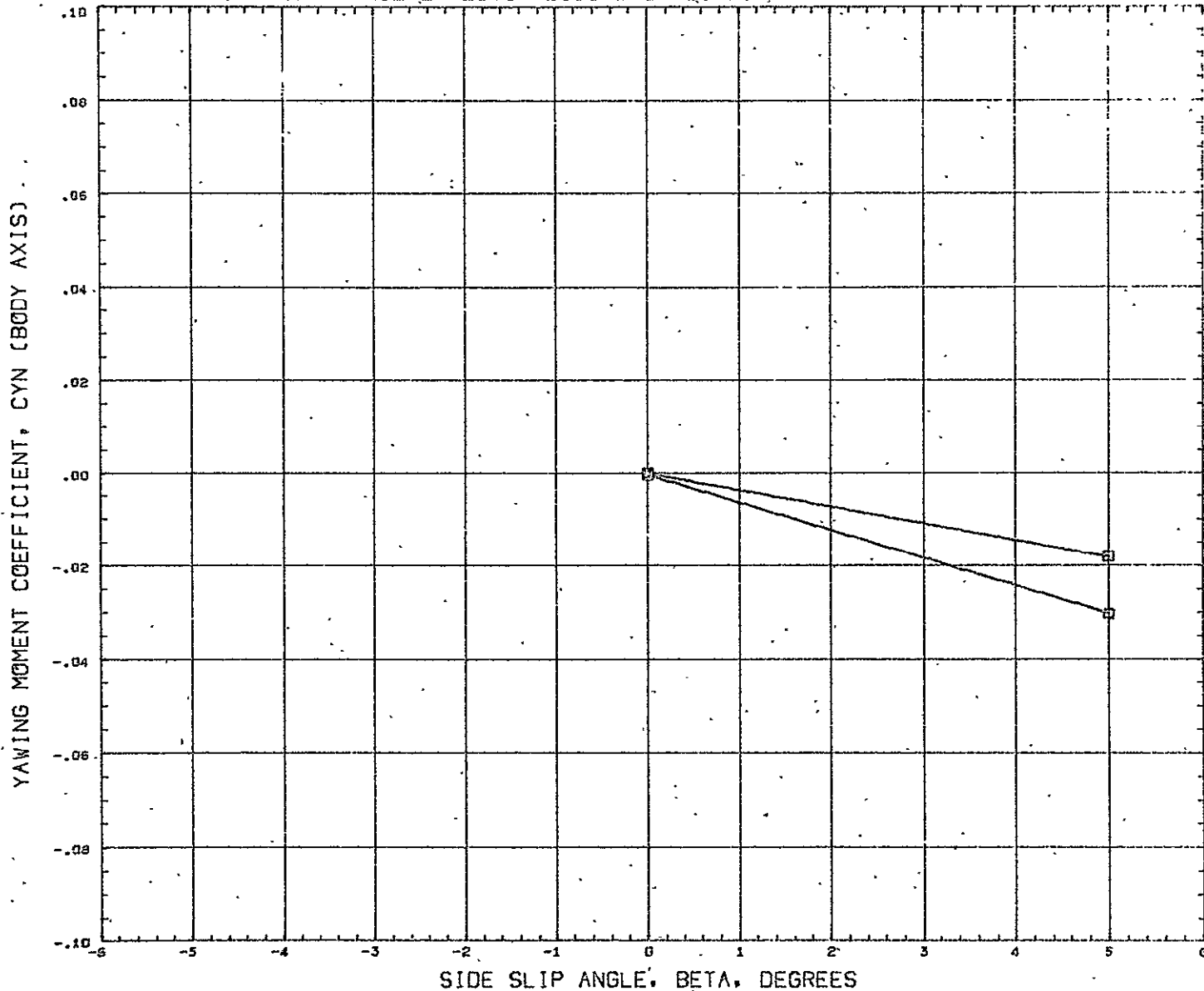
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(RCH111) □ MSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

PARAMETRIC VALUES
MACH 2.990

REFERENCE INFORMATION
REFS 54.6580 SQ IN
REFL 2.9920 IN
REFB 19.7600 IN
XMRP 15.8990 IN
YMRP 0.0000 IN
ZMRP 2.0000 IN
SCALE 0.0088

SEFFOS 15.000

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB



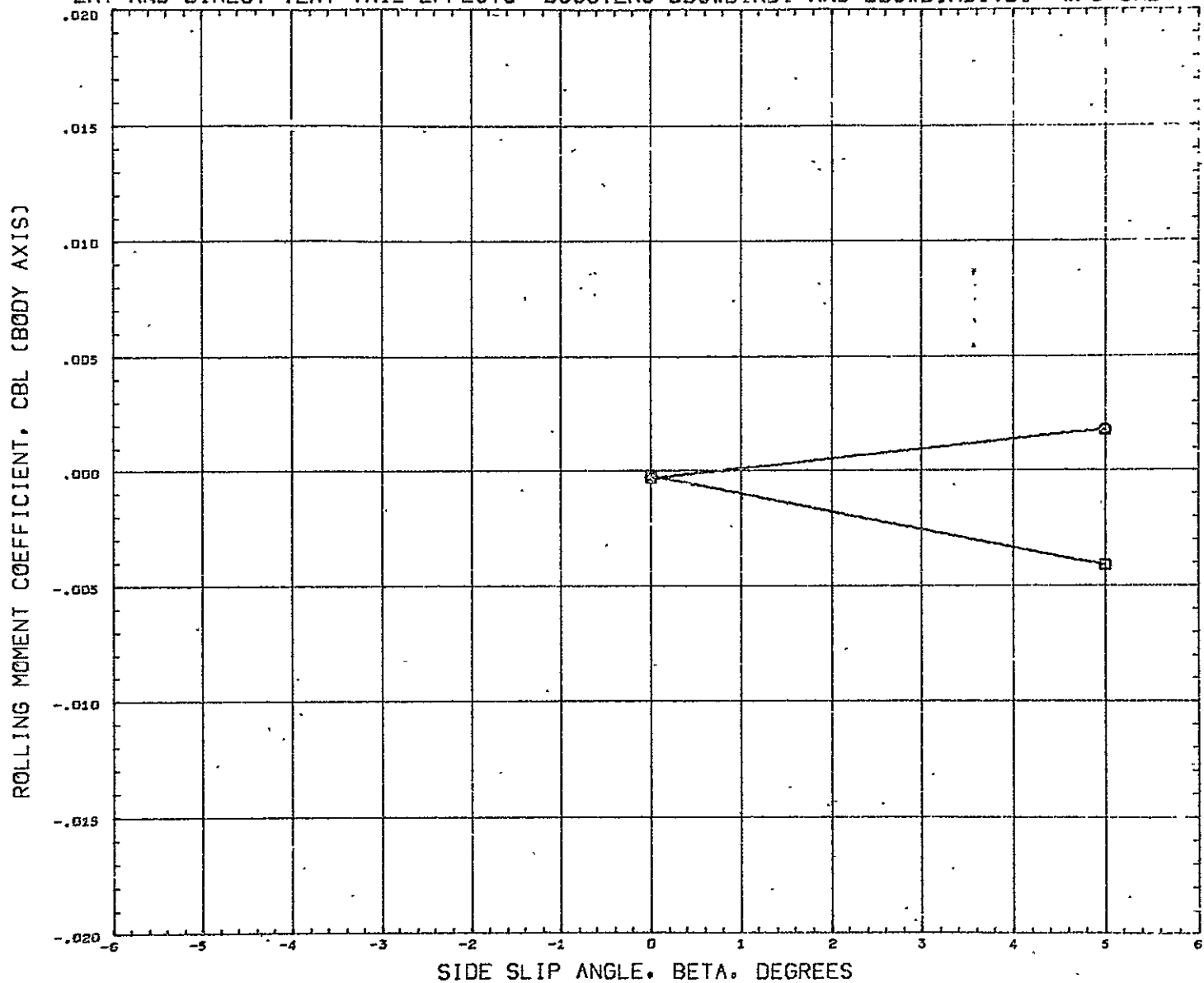
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 (RCH111) \square MSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

PARAMETRIC VALUES
 MACH 2.990

REFERENCE INFORMATION
 REFS 54.6580 SQ IN
 REFL 2.9920 IN
 REFB 19.7000 IN
 XMRP 15.8990 IN
 YMRP 0.0000 IN
 ZMRP 2.0000 IN
 SCALE 0.0088

SEFFOS 15.000

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB



DATA SET SYMBOL CONFIGURATION DESCRIPTION

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(RCH111) ☐ MSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

PARAMETRIC VALUES

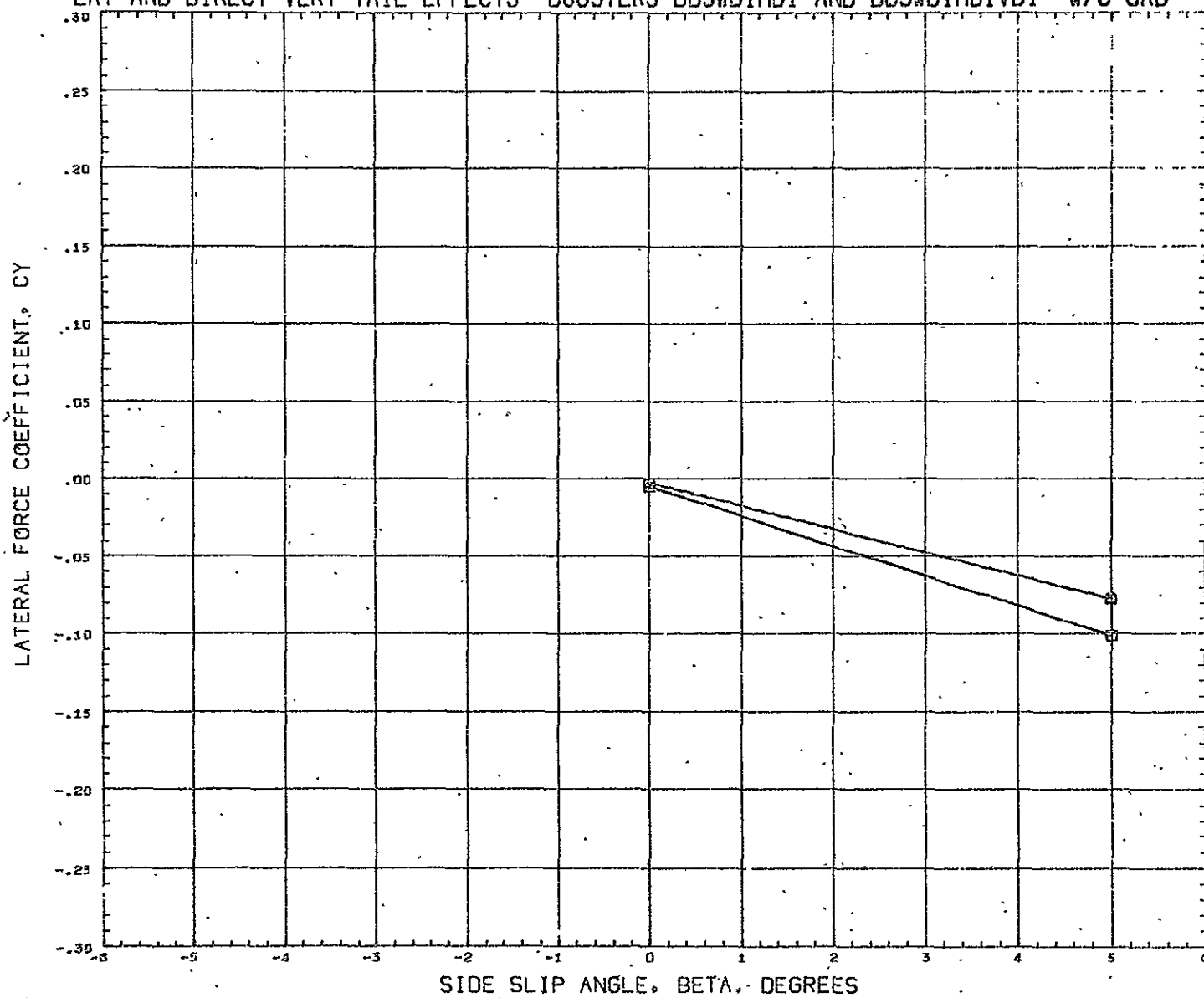
MACH 2.990

REFERENCE INFORMATION

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REFB 19.7000 IN
XMRP 15.8990 IN
YMRP 0.0000 IN
ZMRP 2.6000 IN
SCALE 0.0088

SEFFOS 15.000

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB



DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCH113) ○ MSC S-28 BOOSTER BB3WB1HB1 ALONE
(RCH114) □ MSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

PARAMETRIC VALUES

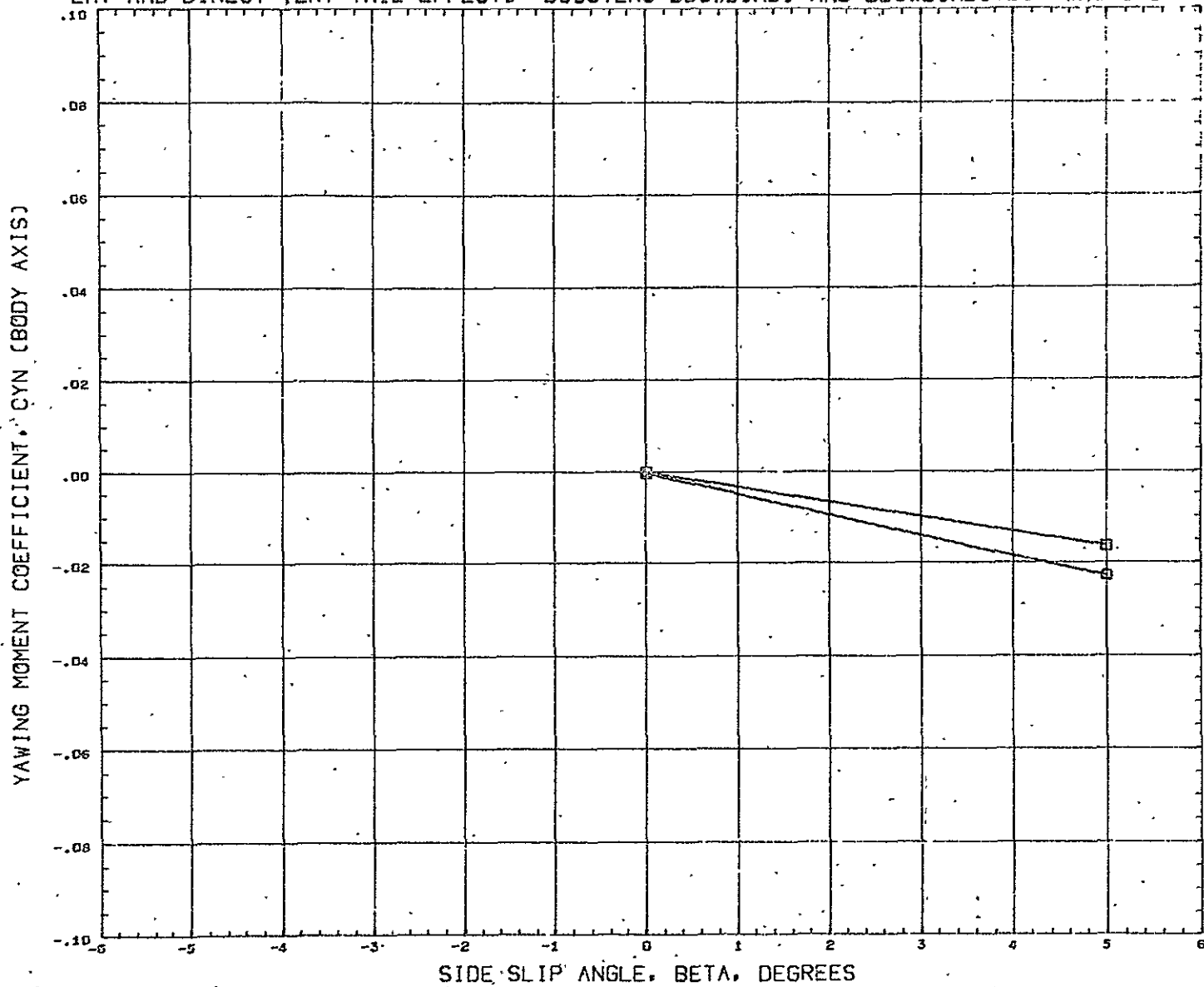
MACH 4.390

REFERENCE INFORMATION

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REFL 2.9920 IN
REFB 19.7000 IN
XNRP 15.8990 IN
YHRP 0.0000 IN
ZNRP 2.0000 IN
SCALE 0.0088

SEPP05 15.000

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB



DATA SET SYMBOL CONFIGURATION DESCRIPTION
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 (RCH114) □ HSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

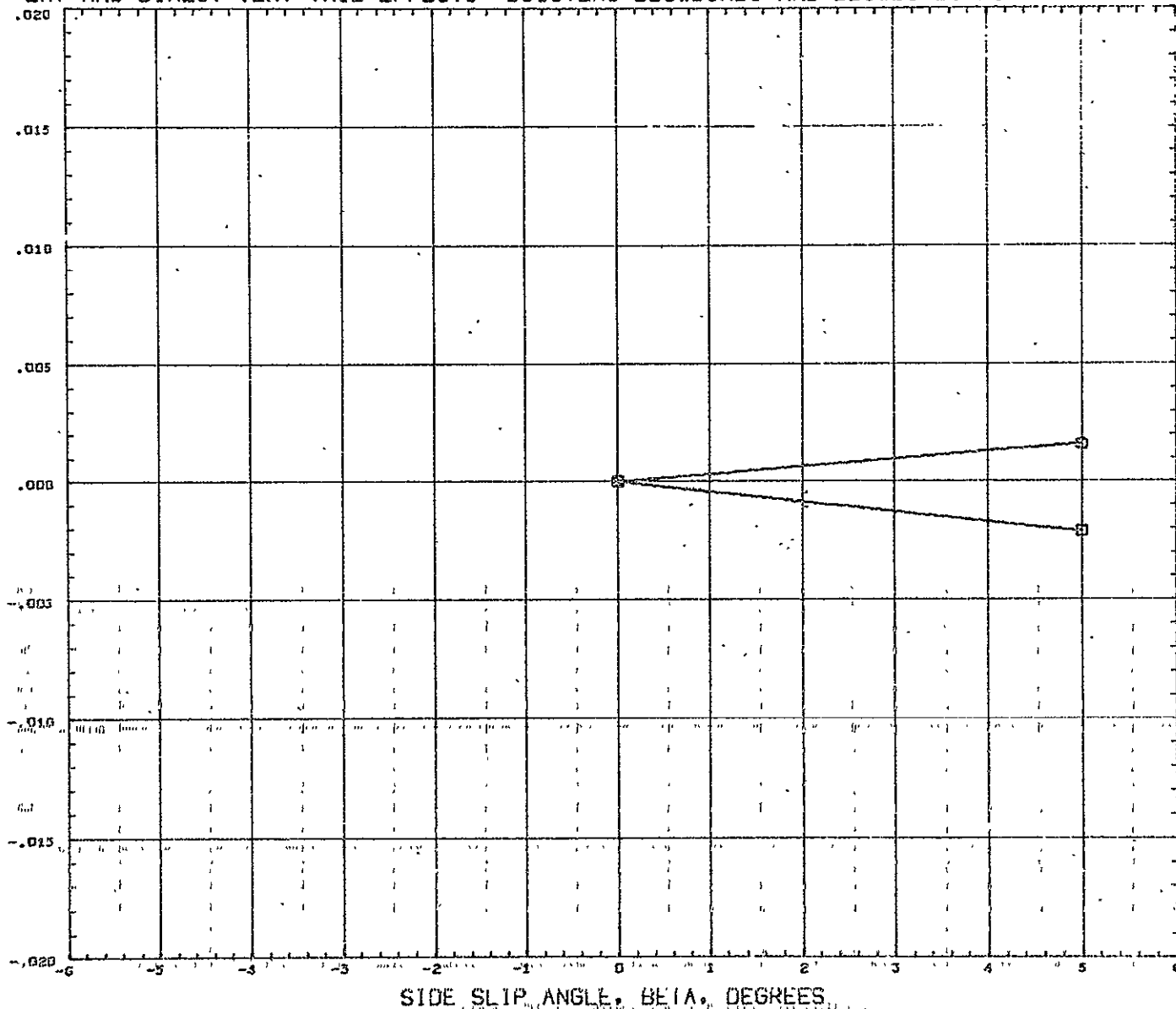
PARAMETRIC VALUES
 MACH 4.390

REFERENCE INFORMATION
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 REFL 2.9920 IN
 REFB 19.7000 IN
 XMRP 15.8990 IN
 YMRP 0.0000 IN
 ZMRP 2.0000 IN
 SCALE 0.0088

SEFFOS 15.000

LAT AND DIRECT VERT TAIL EFFECTS- BOOSTERS BB3WB1HB1 AND BB3WB1HB1VB1- W/O ORB

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



DATA SET SYMBOL, CONFIGURATION DESCRIPTION
 (RCH113) ☐ HSC S-28 BOOSTER BB3WB1HB1 ALONE
 (RCH114) ☐ HSC S-28 BOOSTER BB3WB1HB1VB1 ALONE

PARAMETRIC VALUES
 MACH 4.390

REFERENCE INFORMATION
 REFS 54.6580 SQ IN
 REFL 2.9920 IN
 REF2 19.7000 IN
 XMRP 15.8990 IN
 YMRP 6.0000 IN
 ZMRP 2.0000 IN
 SCALE 0.0000

SEFFOS 15.000